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*Please confirm with the dealer in your area regarding Dolby Atmos, not all are upgraded yet.

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WELCOME

The concept of Smart TVs is now into its fifth year, and the change from the basic connected sets of 2010 to today's modern, feature-packed screens is startling.



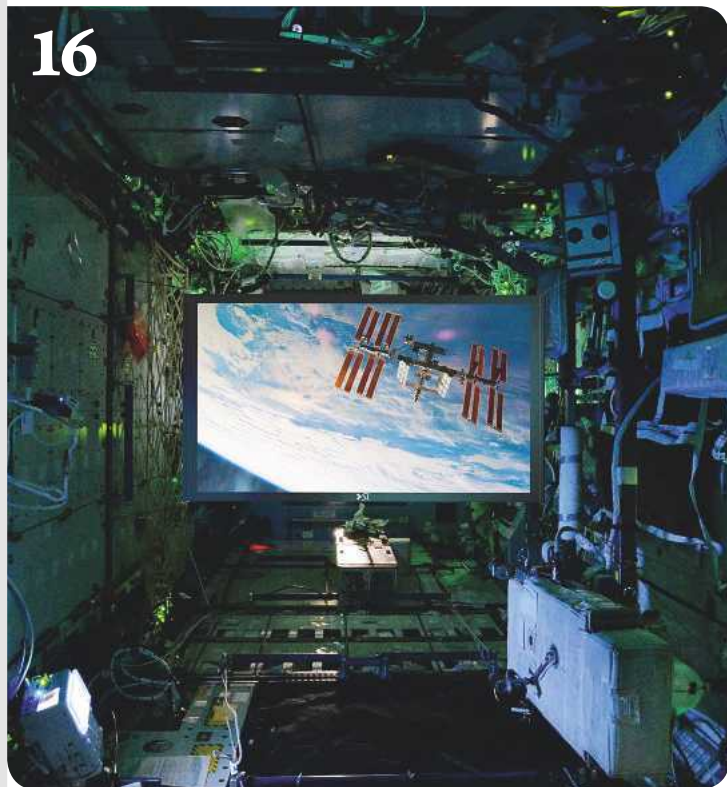
Our cover star, Sony's 65X9005C, marks the latest development – the introduction of Google's Android operating system into UK living rooms. **Android is the world's most popular smartphone OS**, so the idea of it powering a TV makes commercial sense, and will definitely appeal to Droid-hedz. Yet Sony faces stiff competition from the likes of LG's WebOS system and Samsung's Tizen-driven tellies. Can Android TV lay claim to the Smart crown? Turn to page 42 to find out.

Meanwhile, a word on the passing of film legend Sir Christopher Lee. As an actor with a fantastic decades-spanning career, all of us will have a number of his movies in our collection, including Hammer's classic *Dracula*. So fangs for the memories...

Mark Craven
Editor



MENU



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The UK's most experienced TV tester cut his teeth as an early HCC staffer



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system worth
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BULLETIN

→ **News Highlights** **MONITOR AUDIO** Revamped speakers take home cinema fans to seventh heaven **DENON/MARANTZ** AVR makers puts DTS:X on the fast-track **POLAROID** Affordable 4K TVs on the way **FREEVIEW PLAY** Gearing up for a new age of connected TV **NEWS X10** The hottest stories in bite-size chunks **FAST & FURIOUS 7** Action blockbuster races onto DVD and BD **AND MORE!**

Bright eyes

Optoma HD91+ → www.optoma.co.uk



Optoma has taken the wraps off the successor to its HD91 projector. Priced around £3,500, the HD91+ features the same styling and harnesses the same LED technology as the original model, but promises significant improvements in picture performance via an increased contrast ratio and 1,300 Lumens brightness (compared to the 1,000 Lumens of the HD91). Other features include CMS+ image calibration, PureMotion4 picture processing, vertical and horizontal lens shift, a healthy 1.9x zoom and twin HDMI inputs. Lamp life is rated at a reassuring 20,000 hours.

HCC ONLINE...

Looking for breaking AV news, blogs, features, & reviews? For your daily fix visit us at www.homecinemachoice.com Follow us on Twitter @hccmag

Metal militia

Monitor Audio Bronze → www.monitoraudio.co.uk



Hot on the heels of its revamped Gold series loudspeakers, Brit brand Monitor Audio has introduced a tweaked Bronze range. In addition to higher-quality cabinets, the new models utilise retooled C-CAM drivers that promise to be less prone to break-up under high drive conditions. The seven-strong lineup consists of two standmounts (Bronze One and Two), two floorstanders (Bronze Five and Six), the Bronze Centre, the Bronze W10 sub and the wall-mounted Bronze FX surround (offering both dipole and bipole operation). Prices start at £160 for the Bronze Centre and peak at £700 for a pair of Bronze Six floorstanders.

Prime'd for the UK



UK distributor Karma-AV has confirmed that the full range of SVS Prime speakers is crossing the Atlantic. The US brand's second full-range speaker family consists of the Prime Tower, Prime Bookshelf, Prime Centre and Prime Satellite (pictured), with prices running from £220 for a pair of Satellites in a Black Ash finish to £970 for a pair of Towers with a Piano Gloss finish. We've already snaffled a Prime Satellite 5.1 system for review – check it out on p62.

www.karma-av.co.uk

4K goes mass market



Supermarket chain Asda has revealed that it is adding 55in and 65in 4K/Ultra HD screens to its line-up of Polaroid TVs in 32 stores across the UK from July 4. Detailed specifications (such as HDCP 2.2 compliance) are rather thin on the ground at the time of writing, but we can confirm that the TVs will be priced at £700 and £1,100 respectively, and promise built-in 'Bluetooth options' that will 'give two viewers the opportunity to share the screen while watching different content simultaneously.'

www.asda.com

HEOS soundbar



We may still be waiting for HEOS-compatible AV receivers (see DTS:X story below), but in the meantime Denon has added a soundbar to its growing family of multi-room audio gear. Priced around £600, the HEOS HomeCinema soundbar boasts dual 2in x 5in midrange drivers and dual 0.75in dome tweeters, and ships with a matching wireless sub employing a pair of 5.25in woofers. As well as compatibility with the HEOS wireless music system, it also offers HDMI input/output (with ARC) and Denon's Virtual Surround processing.

www.denon.co.uk

DTS:X fast-tracked at Monaco

3D audio to feature on all new Denon and Marantz seven-channel amps

Denon and Marantz have revealed a forthcoming range of AVRs compatible with the new immersive DTS:X sound format at a glamorous product showcase held in Monte Carlo. While Monaco is known as a playground for the rich and famous, this new tech is not going to be restricted to high-end products, with prices starting at just £500.

We expect interest will be particularly high in the £500 Denon AVR-X2200W, a seven-channel model offering Dolby Atmos and DTS:X 3D audio. It sports a 95W per channel power plant, eight HDMI inputs, two HDMI outs, two optical inputs, USB port and dual subwoofer outs. Sources can be upscaled to 4K at 30Hz. It will be joined on the grid by the step-up £750 AVR-X3200W, which ups power output to 105W per channel and boasts upscaling to 4K 60Hz, plus second zone support.

The most aggressively-specified new model is the AVR-X4200W, a 7.2-channel design offering 125W per channel. In addition to Atmos and DTS:X, this receiver can also be firmware upgraded to Auro 3D, at additional cost.



Ken Ishiwata: 'I think on Dolby Atmos there are problems when it comes to DSP and time delay issues. Maybe I'm too critical...'

As yet there is no sight of a model with built-in HEOS multiroom audio integration, but this seems inevitable. 'HEOS provides us with a terrific opportunity to get enabled platforms throughout the home. We plan on integrating it back into AVRs, hi-fi and mini systems, to create a home ecosystem,' says CEO Jim Caudill.

Sibling rivalry?

Denon's sister brand Marantz unveiled a similarly updated home cinema slate at the event. The £750 100W per channel 7.1 SR5010, with eight HDMI inputs and two outputs, leads its full-size AVR range in August. Two 9.2-channel models – the £900 110W per channel SR6010 and the £1,400 125W per channel SR7010 – follow in September. All are Dolby Atmos and DTS:X compatible, with the latter also upgradeable to Auro-3D.

The brand's slim-line receivers also benefit from an update, in the shape of the NR1506 and NR1606, priced at £450 and £550 respectively. The NR1506 is a standard 5.1 design, with 50W per channel and six HDMI inputs. The NR1606 is 7.1 channel with eight HDMI inputs plus Dolby Atmos and DTS:X.

Also due to arrive in October is the £1,700 Marantz AV7702mkII pre-amp (pictured), with Dolby Atmos and DTS:X support, upgradeable to Auro-3D.

While Dolby has made noises about the adoption of Atmos as a music-only format, Marantz brand ambassador Ken Ishiwata seems less convinced. 'I think on Dolby Atmos there are problems when it comes to DSP and time delay issues,' he told HCC. 'Maybe I am too critical, but for me time delay is the most importantly factor.'



PLAYLIST...

Team HCC spins up its disc picks of the month

Exodus: Gods and Kings 3D (All-region BD)

The Blu-ray release of Ridley Scott's latest historical epic delivers a truly divine home cinema experience when it comes to picture and sound quality.



Shark (All-region BD)



This recent BBC Nature series looks magnificent in hi-def. But why has the final episode been relegated to the status of an extra feature?

Newsroom: Season Three (All-region BD)



The truncated final season of Aaron Sorkin's underrated HBO series still packs in more drama than most.

Nadia: The Secret of Blue Water: Complete Collection (Region B BD)



All 39 episodes of the classic Jules Verne-inspired anime have been lovingly restored for this hi-def boxset.

Island of Death (All-region BD)



This former Video Nasty hits Blu-ray with an impressive restoration and loads of fascinating extras.

EXTRAS...

Small items that could make a big impression

The Sound of Music FAQ



From the true story of the Trapp family to the award-winning musical itself, this mammoth paperback packs more than 400 pages of exhaustively researched facts and trivia about *The Sound of Music*. We expect it will quickly find a place on every fan's list of their favourite things...

LEGO Ideas: The Big Bang Theory



Following sets based on *Ghostbusters* and *Back to the*

Future, LEGO is now adding geek sit-com *The Big Bang Theory* to its 'Ideas' lineup of fan-submitted concepts. Released on August 1, the new LEGO Ideas set features Leonard and Sheldon's living room, decorated with various accessories and seven minifigs.

The Gold Standard: Rules to Rule By



Timed to coincide with the release of the *Entourage* movie, this spoof motivational guide from fictional showbiz agent Ari Gold provides plenty of laughs and may even teach you a thing or two about surviving the world of big business.

BT Sport embraces 4K future

Ultra HD sports channel to launch in August, new PVR on the way

BT Sport has announced that it will launch an Ultra HD sports channel in August, bringing Champions League and Premier League football, plus Aviva Premiership Rugby, to the nation's screens in super-sharp 4K resolution.

Called, unsurprisingly, BT Sport Ultra HD, the channel is the first UHD/4K channel in Europe, and will begin on August 2 with a showing of the FA Community Shield between Chelsea and Arsenal.

To get access to the channel, you'll need to be a BT Infinity subscriber. You will also need BT's new 4K-capable set-top box, details of which are currently sparse. BT says it will be the broadcaster's 'best ever' YouView+ box, offering 1TB of storage and capable of storing up to 250 hours of HD material (how much 4K footage it can store is not specified). Interested parties are advised to register their interest via the www.bt.com/ultrahd website.

The launch is good news for 4K flatscreen owners, who can now supplement their diet of Netflix and Amazon Prime 4K shows with live sports. Meanwhile, with Ultra HD Blu-ray promised before the year's end, 4K movies aren't far away either. Yet all eyes will now turn to Sky, which some will have expected to be first out of the block with a 4K channel. Its 'Project Ethan' STB has long been rumoured, and it has already conducted live 4K test broadcasts, but the company remains silent on any plans.

Leagues ahead

News of the UHD broadcasts came on the same day that BT Sport



One new channel, lots of familiar faces...

confirmed its new BT Sport Europe channel, which will show all 351 football games from the UEFA Champions League and Europa Cup in the 2015/2016 season. UK footy favourite Gary Lineker has been signed up to host the new channel alongside Jake Humphreys and Rio Ferdinand.

Satcaster rival Sky and free-to-air channel ITV previously shared the broadcast rights to the Champions League, but BT grabbed exclusivity after agreeing a whopping £897m deal for three years.

Access to BT Sport Europe won't be free to anyone signing up to a broadband package – it will only be dished out *gratis* to BT TV subscribers. So

those who may be combining BT broadband with Sky, Freeview or Freesat TV will need to pay a £5 monthly fee. However, BT will make some matches available for everyone via a new, free-to-air channel on digital TV called BT Sport Showcase. This will show a minimum of 12 Champions League matches and 14 Europa League games.



BT's current STB (pictured) won't support the 4K channel

Onkyo AVRs bring DTS:X home

Company also unleashes a trio of affordable Dolby Atmos upgrade paths

Japanese AV brand Onkyo has evidently taken the new 3D sound formats to its heart, releasing a brace of DTS:X-compatible AV receivers, plus a trio of entry-level offerings for those looking to add Dolby Atmos to their home cinema setup.

The new 7.2-channel TX-NR646 (£550) and TX-NR747 (£850, pictured) AVRs are available to buy now and feature Dolby Atmos functionality out of the box, with DTS:X support arriving via a firmware update later in the year. The TX-NR646 claims 160W per channel, with the step-up model boosting the power output to 175W per channel. Both AVRs also include a variety of wireless streaming options and

eight 4K/60Hz-ready HDMI 2.0 inputs, including dedicated HDCP 2.2-compliant terminals.

The new Dolby Atmos kit takes the form of the TX-SR444 7.1-channel AVR (£350), the SKS-HT588 5.1.2-channel speaker package (£450) and the HT-S5805 Dolby Atmos Home Theatre Package (£700). The latter pairs the SKS-HT588 speakers with the brand's HT-R494 AVR.

The £850 TX-NR747 will get a DTS:X firmware update later this year



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DIARY

Our calendar ensures that you don't miss out...

→ JULY

03: CEDIA Awards 2015

The UK's custom install industry will be downing tools and putting on its glad rags to attend this prestigious awards ceremony celebrating the very best in the business. www.cediaawards.org

03: Terminator Genisys

If you didn't manage to score an invite to the CEDIA Awards, why not pop along to your local multiplex to catch the latest instalment in the *Terminator* saga. James Cameron has seen it and says it's great – which is good enough for us... www.paramount.co.uk

10: Ted 2



The sequel to Seth MacFarlane's hilarious 2012 comedy smash arrives in UK cinemas today and finds the foul-mouthed teddy bear fighting for the right to have a child. www.universalpictures.co.uk

13: X-Men: Days of Future Past – The Rogue Cut

A second Blu-ray and DVD outing for the last *X-Men* movie, featuring an extended cut of the film and a cornucopia of new bonus features. www.fox.co.uk

17: Ant-Man

The twelfth(!) film in the Marvel Cinematic Universe sets out to show that bigger isn't always better as its diminutive superhero battles to save the day. Opens today at UK cinemas. www.disney.co.uk



20: The Third Man

The legendary 1949 British film noir makes a welcome return to Blu-ray. StudioCanal's second attempt at giving the film the hi-def treatment it deserves promises a brand-new 4K restoration plus plenty of extras. www.studiocanal.co.uk

24: Inside Out

Pixar's latest plays out in the mind of a young girl and follows the antics of the five emotions that try to guide her through life. Let yours guide you to the cinema to see it this Friday. www.disney.co.uk

30: HCC #250

The next issue of your favourite home cinema magazine hits the stands, packed with hardware tests, features, outspoken opinion and in-depth software reviews. www.homecinemachoice.com

A new age of connected TV

Freeview Play gears up for launch; first screens coming from Panasonic

Freeview Play, the internet-connected version of the ubiquitous UK digital TV platform, will finally launch this Summer. Seamlessly mixing terrestrial digital TV with online catch-up services, Freeview Play is built upon the DTG D-Book and the European HbbTV 2.0 (Hybrid Broadcast Broadband TV) standard. The concept will be a familiar one to users of YouView and Freesat Freetime.

The Freeview Play EPG looks much like the familiar Freeview user interface, but adds a subtle catch-up button for the four on-demand services (BBC iPlayer, ITV Player, 4OD and Demand 5), as well as a seven-day rollback programme guide for intuitive access to telly missed. Additional Freeview channel on-demand providers are expected to be added as the service rolls out. New features include Smart re-tuning and automatic firmware updates.

The central metadata system behind Freeview Play has been developed by Arqiva. This is in the final stages of production and testing, we were told.

The first Freeview Play-enabled screens will be launched by Panasonic. The brand plans five Freeview Play TVs, including 4K/UHD screens. Humax will sell set-top boxes. OEM TV maker Vestel will join with enabled screens for its various brands later this year. The system is being considered by other, as yet unconfirmed, marques.

Pay to Play

Ilse Howling, MD of Connected TV at Digital UK, the group responsible for the development of digital TV in the UK, confirmed that the final specification was finished last Autumn. While Howling declined to pledge a launch date for Freeview Play, Panasonic told HCC it expects the service to go live in July,



Ilse Howling: 'Freeview Play is exactly what customers want when you ask them what they want from new technology'

supported by Freeview's biggest ever advertising spend. 'Freeview Play is exactly what consumers want when you ask them what

they want from new technology,' explains Howling. 'It's about helping consumers navigate complexity.'

Howling denies Freeview Play is coming late to the Smart TV party, although concedes there have been delays. The long-mooted service was greenlit a year ago, after its shareholders announced a five-year investment to develop and market the service.

There remains some controversy surrounding the technology, though, as both hardware and channel partners must pay a levy to implement Freeview Play. 'We had to do some thinking about the funding approach,' admits Howling. 'Recognising the substantial investment in the platform, we're asking a modest contribution from both the manufacturers and the content providers. For manufacturers, the benefit of being part of the service is access to all the central Freeview on-demand players. They also get access to the metadata technology, which makes the consumer navigation so simple, and they get use of the new test materials commissioned by Freeview.'

Will this lead to some TV makers holding back their commitment to the service? Only time will tell.

Live TV still popular

The Smart TV market continues to grow apace. According to market analyst Futuresource Consulting, 31 per cent of UK homes currently have a connected TV, with 68 per cent of them connecting 'multiple' times a week. Of this connected population, 62 per cent use a catch-up service at

least once a week while just 35 per cent use an SVOD service, such as Netflix.

Despite a surge in on-demand viewing, live TV remains the most popular way of watching TV, with 59 per cent of those surveyed saying it's their prime source of viewing. And more people still watch shows timeshifted onto PVRs than stream from catch-up services.



Panasonic plans five Freeview Play TVs

This month's top 10 news stories in handy, bite-sized chunks...



1 McIntosh goes clubbing

High-performance home entertainment specialist McIntosh Laboratory is taking its Despacio club-orientated sound system on the road this Summer. Conceived by LCD Soundsystem's James Murphy, Belgian artists TooManyDJs and renowned recording engineer John Klett, the Despacio system consists of eight 11-foot McIntosh speakers/amp towers, providing a total power output of 77,600W. The tour begins in London in Citadel (July 19) followed by Lovebox festival (July 17-18), before moving on to Electric Picnic in Ireland (Sept 4-6).

2 Cinemas vs. pirates

Industry body the UK Cinema Association says that measures to stamp out piracy in cinemas across the country are having an effect, with no films recorded from a UK cinema appearing online as an illegal download last year!

3 Golden Ticket returns

PMC has re-introduced its Golden Ticket Promotion, giving UK buyers of its Twenty series loudspeakers the chance to win back the purchase price. The competition is only open to customers using an authorised PMC dealer and runs until August 31. Visit your nearest store for more info.

4 Wallpaper TV

LG Display has been showing off an ultra-thin 55in OLED screen that can stick to walls. The prototype 'wallpaper OLED panel' is just 0.97mm thick and weighs 1.9kg, meaning that it can be quickly stuck to a wall using a magnetic mat and peeled off again after use. Cool.

5 3D is a brain booster

A recent study undertaken on behalf of 3D tech specialist RealD claims that watching films in 3D actually boosts your brain power. The group of neuroscientists who undertook the study found that reaction times improved by 11 per cent in those watching a 3D film, as opposed to just two per cent for those who watched the 2D version. Similarly, cognitive processing was apparently boosted by 23 per cent (3D) against 11 per cent (2D).

6 Roku revamps streamer

Roku has launched a new version of its Roku 2 streaming box. The revamped streamer will set you back around £70 and promises to be just as speedy and efficient as the Roku 3 and provides access to over 1,400 channels, including BBC iPlayer, ITV Player, Demand 5, Google Play, Netflix, Sky Store, Cinema Now and Now TV.

7 DTS:X Machina

Acclaimed sci-fi thriller *Ex Machina* will become the world's first movie to sport a DTS:X mix on Blu-ray when it hits the US on July 14. While the UK platter (reviewed last issue) was handled by Universal Pictures and opted for DTS-HD MA 5.1 sonics, the US disc has been put together by Lionsgate, which clearly has an affinity for enhanced audio tracks, having been among the first studios to experiment with DTS Neo:X, DTS Headphone:X and Dolby Atmos mixes on its Blu-rays.

8 Bigger One

Microsoft has released a new 1TB version of its Xbox One console. Priced £350, the new model also ships with a tweaked wireless controller that features 'fine-tuned' bumpers and incorporates a standard 3.5mm headphone jack (whereas the original controller forced you to buy an adaptor in order to connect your 'phones).

9 Amazon sets kids on Fire

Amazon has launched a child-friendly version of its tablet. The Amazon Fire HD Kids Edition went on sale in June priced £120 for the 8GB version and £140 for the 16GB model. While most of the tech is the same as the regular Amazon Fire, this new tablet features extensive parental controls and a choice of pink or blue cases.

10 Fox commits to HDR

Twentieth Century Fox has become the first major Hollywood Studio to commit to making versions of all of its upcoming movies in Ultra HD with HDR (High Dynamic Range) for home viewing. Fox is currently using a non-proprietary HDR spec to create content until the UHD Alliance settles on a consistent, inter-operable HDR format. The studio is also working on UHD HDR versions of recent blockbusters including *X-Men: Days of Future Past* and *The Maze Runner*.



PREMIERE

What's happening in the world of TV and films...

Monster man retires

Legendary special effects maestro Rick Baker has announced that he is retiring at the age of 64. Baker cites the dominance of CG visual effects as one of the main reasons for his quitting the film business.

...Carter finally hits UK



Marvel's *Agent Carter* TV series has finally found a UK home. Despite receiving rave reviews when it screened during the *Agents of S.H.I.E.L.D.* mid-season break in the US, UK fans have been left waiting six months for it to air over here. Thankfully, those who didn't resort to watching a dodgy online version during the delay can catch *Agent Carter* on FOX, starting this month.

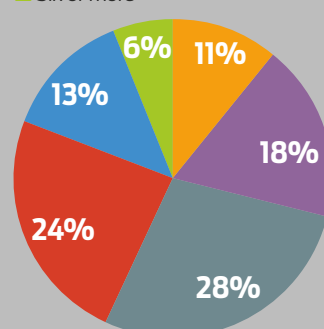
Big trouble brewing

Fresh from saving the world from earthquakes, Dwayne 'The Rock' Johnson is set to star in a remake of *Big Trouble in Little China* – and the actor has revealed that he wants original director John Carpenter to be involved in some capacity.

WE ASKED...

How many functioning TVs are there in your house?

One Two Three
Four Five
Six or more



Results from www.homecinemachoice.com
Go online for more polling action

Flame on!

Fast & Furious 7 → Universal Pictures → All-region BD & R2 DVD



Over the past five years the *Fast & Furious* franchise has transformed itself from simply being a big hit with petrolhedz to becoming one of the world's most popular action series. Between its parachuting cars and punishing punch-ups (including an unforgettable smackdown between action icons The Rock and Jason Statham) *Fast & Furious 7* takes everything we love about the previous entries and cranks it up to an even higher gear. The movie races onto DVD and Blu-ray on September 9 (the latter featuring an extended cut) – get your pre-order in now!



Yamaha Soundstage

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SRT-1000

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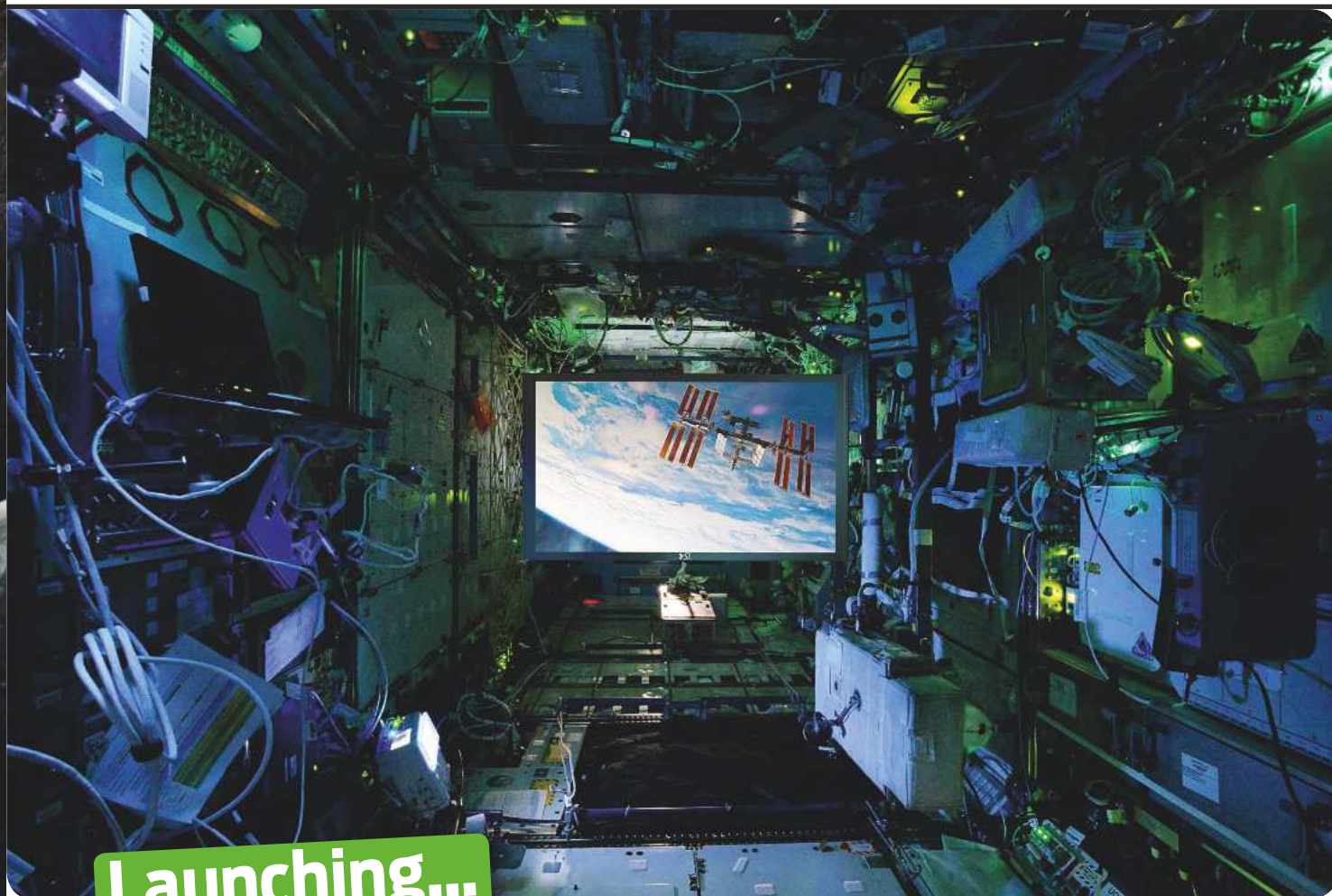
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Launching...

Home cinema in space!

Astronauts on the International Space Station have been given a life-changing 65in projector screen. **Jamie Carter** marvels at the innovation required to make zero-gravity movies possible

IS THIS THE ultimate custom install? Astronauts on the International Space Station (ISS) got a serious home cinema makeover recently when they upgraded their 13in displays to a much more immersive 65in projection system. However, this wasn't a simple case of getting the credit card out – the screen itself had to be a one-off. And, despite understanding the gravity of the situation (or lack of), engineers at Texas-based Screen Innovations

(SI) took eight months to perfect a product that could stand the rigours of low-Earth orbit.

Blackout botheration

There are many ways in which the ISS isn't like your average home cinema room. Most importantly for watching films is the lights; astronauts never switch them off. The ISS is a 24/7 laboratory where you sleep, you do science. Maybe watch a film while someone else does science. Repeat. The shift patterns are such that there's never a time when one of the astronauts isn't awake and working, so the lights stay on. There's also the little matter of the ISS entering the night-side of Earth every 45 minutes.

Since home cinema normally relies on a blackout, creating a projector screen capable of preserving watchable contrast ratios is no easy task. The answer was a screen capable of ambient-light rejection, which is why NASA had asked Screen Innovations (SI) about the task in the first place.

The entire screen had to roll up into a postal tube for it to fit in a Dragon capsule payload





SI's Tom Nugent next to the ISS ViewScreen – bungee cords keep its mounting system taut in zero gravity (above right)

Having made its name with its anti-light scatter Black Diamond projection screens, SI's follow-up Slate screen material formed the core of what became known as the ISS ViewScreen. Slate is basically a cheaper and far more flexible version of Black Diamond, but its rejection of 65 per cent of a room's ambient light – opposed to the 10 per cent or so that most screens manage – made it perfect for the ISS. However, that wasn't before the company's engineering team had to figure out how to make the screen portable, collapsible, easy to set up and microgravity-proof.

Weightlessness means that a regular projection screen will float about, billowing up during a movie and generally being impossible to live with. So how does this model stay flat? 'We created our space station screen to operate in a zero-gravity environment by focusing on the design of the mount system,' says Skyler Meek, Director of Marketing at Screen Innovations. 'Incorporating a four-point mounting system that could be attached to any available location in the various ISS modules, and a way to centre the screen after mounting, ensured that the screen would remain flat.'

With a motorised screen a non-starter in zero gravity, bungee cords and aluminium tubes are used to allow the screen to be unfurled manually using one hand. More importantly, it can be set up anywhere in the ISS. 'Fixed screens are easy, but a portable setup brings all sorts of challenges to the table,' says Tom Nugent, technology specialist at SI. Stainless steel leashes from aluminium tubes on each end of the screen are attached to bungees, which secure to the walls of the ISS modules. When the film is over, everything retracts back into a tube, no cables visible, and there's even a zero gravity-friendly corkscrew-style cap.

Dinner on a movie

Remember that time you watched *Avatar* in your movie room and spilled gravy all over the screen? Of course not. Yet while getting food on your flatpanel might not be a common problem down here on Earth, at 60 miles up in the ISS it's a real issue. 'In zero gravity, food particles have a tendency to escape and move about to places where they were not intended, like the surface of a large screen,' says Meek, 'so having a material that is easy to clean was a must.' Luckily, the ISS ViewScreen can be cleaned with a microfibre cloth.



The screen also had to pack down to fit in the Dragon capsule to get to the ISS in the first place, and be easy to store in the cramped conditions of the ISS modules. 'It can be rolled down to a very small diameter, just two inches, and packed away for much-needed space saving,' says Meek. In fact, NASA insisted it had to be no longer than three feet long, the dimensions of a standard parcel tube you might deliver a film poster in. So it was that on 14 April 2015, a SpaceX rocket launched from Cape Canaveral in Florida to take home cinema to space.

'Screen Innovations took eight months to perfect a projector screen that could stand the rigours of low-Earth orbit'

By May the screen was in place and those 13in laptops presumably jettisoned to burn up in Earth's atmosphere, though the system comes with no Blu-ray player. There would be no point – in zero gravity the disc would move in its cradle and miss the laser – so all video comes via streaming feeds from the surface, or from flash-based hard drives loaded with content. Since it's got few moving parts, zero gravity has no such effect on the 1080p short-throw laser projector from Casio that's used in the ISS. In fact, weightlessness brings an advantage. While most home cinema owners have to buy ceiling brackets to keep a projector in place, astronauts just use Velcro to attach it almost anywhere they want.

Keeping up morale

The creation of the ISS ViewScreen does, of course, beg a question. Why do astronauts need to watch films? Is orbiting the Earth 16 times a day at five miles per second really that dull? 'Morale is an important factor for crew members aboard the space station, especially as missions become longer,' admits Meek. It's true that trips to space are becoming extended; in March NASA sent Scott Kelly to the ISS to start a year-long mission, twice as long as any US astronaut has ever stayed. With trips to Mars on the cards, the experiment will help NASA see how the human body responds to long stays in zero gravity. Coping with boredom will also be crucial for any future eight-month mission to Mars, so perhaps home cinema will be humanity's secret weapon in conquering the solar system ■

READY FOR LIFT OFF

Big-budget sci-fis coming your way in the future

The Martian

Ridley 'Alien' Scott returns to the genre that made him famous with an adaptation of Andy Weir's 2011 novel of the same name. *The Martian* follows NASA astronaut Mark Watney (played by Matt Damon) as he's left stranded following an unplanned evacuation. Release date: 27 November, 2015.

Star Wars: The Force Awakens



A lot is expected from JJ Abrams' refreshed *Star Wars* franchise. Whether he can make stick a story set 30 years after *Return of the Jedi* is anyone's guess, but we can't wait to find out, particularly as the trailer has whetted our appetite. Release date: 18 December, 2015

Independence Day 2

This sequel to the 1996 mega-hit is finally off the ground, with studio Fox making the bold decision to move ahead without original star Will Smith. Returning to the *ID* world, however, are Jeff Goldblum, Bill Pullman and producing duo Dean Devlin and Roland Emmerich. More sequels are already planned. Release date: June 24, 2016.

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Meet the man with an Ultra HD plan

World-renowned video expert Joe Kane has been a champion of image quality for over forty years, and now believes our home cinema future lies in an 'Ultimate' UHD container.

Martin Dew picks his brains on this, OLED screen technology, HD DVD and more

Above: Joe Kane next to his JKP-approved Samsung Full HD projector

THERE'S ONLY A select few to whom the industry-styled title of 'video guru' can apply, and one of them is Joe Kane. Known by consumers for his raft of video calibration discs, including Video Essentials and Digital Video Essentials, he is also CEO of his own production and consulting outfit – Joe Kane Productions (JKP) based in Los Angeles. And his legacy work at Eastman Kodak examining the fundamentals of transferring 16mm and 8mm film to video, combined with his work as chair of the SMPTE Working Group on Professional and Studio Monitors, means there is probably no one in the world with a greater arsenal of knowledge of what makes film look good on a TV screen.

Kane believes, rightly and passionately, that consumers should be allowed to experience the finest image quality in the cinema and at home; what's more, he toils tirelessly to promote that cause. So much so, that he was happy to have *HCC* over for a chinwag.

Before we sit down to chat, Kane plonks me in front of his supremely-calibrated UHD Samsung screen and whets my appetite with his own

8K-resolution holiday snaps of Bavarian landscapes. He then invites me over to his dedicated cinema room to pore over hi-def movie disc samples, and a jaw-droppingly exquisite 720p master of a 1990s NFL football game. The reasons for these precisely-targeted demonstrations become evident during our ensuing conversation...

Your career started in the telecomms industry and then moved into video engineering...

Yes, I got my start in baseband communications, followed by telephone and data communications, and then in 1973 I got myself into the world of video productions when I joined Eastman Kodak.

Was that a natural transition?

The start for all of this – for my getting into video – was being in a good place at the right time. Electronic news gathering happened for the first time in 1973 and Eastman Kodak was worried. TV stations up to that point were shooting news on film. They went out with crews with 16mm cameras, and sometimes Super 8. Most stations had their own

processing lab, and in the US we talked about 'news at six' in the evening, and 'film at 11', because it took time to process the film and put it together. If you wanted to see pictures related to the news, you had to wait until 11pm. Electronic news gathering changed all of that. And Eastman Kodak was, in a way, frightened of losing a market for film. It was one of the many times that someone said 'film is dead'.

So it opened up a research lab to try to determine how to make film look good on television. When the lab was built, instead of going to the TV stations, and saying 'how do you do TV?', we went to the library and pulled the documents – the 1953 NTSC docs that said 'this is how it's supposed to work'. So, in 1973, I learned where NTSC went wrong in 1953. Even though it was 20 years later, I lived that entire history of recognising that the standards didn't work.

A great deal of my heritage and the work I'm doing today has come out of Eastman Kodak. It was a tremendous foundation to be able to work in the research department of the company. Basically, we had DVD in 1978, and Eastman Kodak said, 'Nobody will connect three wires from the source device to the display, therefore we're not going to do it.' When DVD came round, I was one of the first people in the industry who actually knew what it was, because I had seen it years ago in a slightly different form.

Many readers of HCC will be familiar with your Digital Video Essentials test discs. Where are you slotting into the industry today with the services your company provides?

I'm still trying to see the forest from the trees. The majority of people who are working in our technology today talk about how small they can make things and how many transistors they can get onto a chip. All I care about is 'How does it work?' I want to look at what the consumer is seeing.

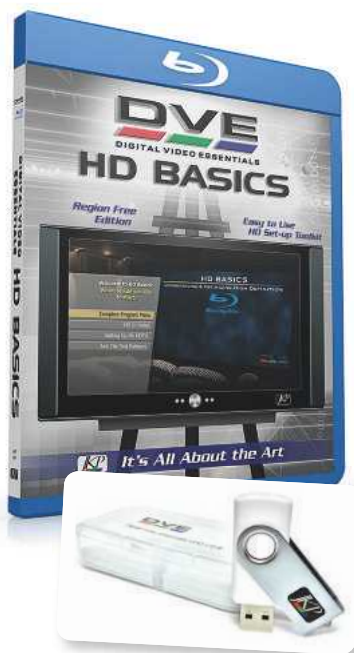
Where I feel I'm most valuable in the industry, is having an overview of what I think the consumer should be getting. We talk about UHD and all that it has to offer, and there is a recognition on my part, and on the part of many people in the industry, that UHD should be a great deal more than it currently is. We recognise that this is an opportunity to break from the past and create a future.

I see things coming and ask 'What's in it for the consumer?' That's where I think my position in the industry is, and I think that's where it's going to be for a long time to come!

You were closely involved in HD DVD, a tech people still talk so highly about today...

Long before HD DVD came out, Microsoft hired me. They were one of the principal companies behind the format. They were involved in the math of whatever they were doing and I was interested in picture quality. So I had recognised a number of things in the mastering process – as an example, mastering in hi-def – for DVD. DVD got a lot better when we mastered in HD and then down-converted. I realised that if HD DVD was going to be any better, we had to master to a higher format than we were distributing.

I ended up proposing to Microsoft that we would have to carefully control how we master for the



Joe Kane Productions' Digital Video Essentials Blu-ray (top) and new UHD content-loaded USB

programme. We were going to have to master in 4K in order to get the best hi-def anybody had ever seen. And then we had to encode it better.

There was a compression scheme that Microsoft had called VC-1. The innovation that I brought to VC-1 was to help the people that were writing the code to see what that code was doing. It was acknowledged that I was producing some of the better high-definition content. I was asked to provide that to Microsoft so that they could encode it and see what it looked like. The first encode I saw, I wouldn't show to anybody. I really didn't think it was good at all. They didn't understand what I was seeing or what I was saying, so they flew down to Los Angeles and saw that I was viewing it on a 10ft screen with my projector. They were looking at it on an 18in monitor, and they recognised I could see a whole lot of things that they couldn't see.

So, we're starting out with some of the best picture quality anyone has ever seen because we're mastering at 4K. We're being very careful about how we convert that 4K to 1080p, so that they're aren't a lot of steps in that conversion process. And then we're feeding it into an encoder that has been set up to work on the biggest display out there, so there aren't any visible defects. With MPEG-2 or AVC (H.264) encoding at the time, no one had the tools to see what they were doing. The AVC encode at the time actually had far more horsepower than VC-1 could ever hope to have, but the people developing VC-1 could see what they were doing. And therefore, for a long time, VC-1 was a vastly superior codec.

And AVC was primarily the Blu-ray codec?

Yes. Quite frankly, the Blu-ray group didn't embrace VC-1 for a long time because it was the HD DVD format. It was a long time before AVC caught up with what VC-1 could do. That's the primary reason why HD DVDs look so good. We did a spectacular job of mastering, and we did a spectacular job of getting that master on the disc, encoding it, not messing with the master, and not going too many generations down. The conversion was as direct as it could possibly be, and the encoder was the best that was out there. The results were spectacular. >



Casablanca on HD DVD used a 4K master





On day one, when *Casablanca* and *The Phantom of the Opera* came out in that format, people were blown away. When HD DVD was introduced at IFA in Berlin, Warner Bros. asked if they could bring 25 executives into my exhibit because they wanted to show them what HD DVD looked like. They were certain that nobody had actually seen it, and I was presenting the best pictures from that format of anyone at IFA. I was immensely proud of that.

You've been vocal concerning the lack of consumer understanding of domestic 4K and how it differs from professional 4K. Can you outline those differences, and why they could lead to miscommunication within the industry?

The real 4K format has been with us for 23 years. I think it was one of the Disney movies, *Snow White and the Seven Dwarfs*, that was the first one done on the 4K system.

As an archiving exercise, or for cinema release?

Initially, the information was converted to a digital intermediate. In other words, the film was scanned into the digital world, manipulation occurred in the digital world, and then it was scanned back to film. The archive format was analogue film. So, the first days/years of the 4K format, it was as an intermediate. And, by the time one of the Batman movies came along, the entire movie was done, or at least the majority of it, with the exception of special effects, in 4K, and it was actually archived as 4K, and then down-converted for digital cinema purposes. But it was a long time before we actually started using 'digital-for-digital'. Certainly HD DVD and Blu-ray made it possible to use digital-for-digital.

And presumably also for what became DCI files for digital cinema?

Yes, so those was a legitimate 4K format, and 4K is 4,096 elements in the horizontal direction from left to right. It was called 4K because that was the only consistent number. The vertical was determined by the aspect ratio of the picture. So, if you had a 1.33:1 image, the vertical was 3,080, but if you had a 1.78:1 picture, it was 2,301. So, 4K, unlike our existing TV systems, is defined by the horizontal resolution. The formats we know at home have all been defined by the vertical resolution – 480, 520, 576, 720, 1080.

When we were originally thinking about taking the consumer format beyond 1080p we were going to do it at 4,096 x 2,160, which is what's used in digital cinema. Then we ran into a problem: there was too much information to get down the HDMI pipeline. So, we decided we've got to have fewer

Kane was involved in the development of the ill-fated HD DVD format

'UHD should be a great deal more than it currently is. We recognise that this is an opportunity to break from the past'

pixels. There was already a 3,840 x 2,160 format that had been described by the ITU for enhanced video. That turned out to be a really convenient number.

Because it's exactly two times the horizontal and vertical values of Full HD: 1,920 x 1,080?

Yes, so it's an easy conversion. People can still do it wrong, but it's one of the easiest things to do right. So, it was logical just to double the horizontal and double the vertical. The format was to be 3,840 x 2,160, but there was an issue: we were not mastering to 3,840 x 2,160. We were mastering to 4,096, which meant that

if we took a 4,096 x 2,160 image and converted it to 3,840, we're only converting in the horizontal direction, and not the vertical direction. And we're only converting by 6 per cent – that's the difference between the two. We're taking 106 pixels in the master and making them into 100 pixels, and when you mash 106 pixels into 100 pixels,

you destroy every single pixel, so that conversion is difficult. It's much easier to take a 3,840 slice out of the centre of the 4,096 picture.

So, you lose that 6 per cent? Chop it off?

Yes, quality-wise, it's better to chop it off. This is the distinction I'm making between the pro format and the consumer format. I've wanted the consumer format to have a different name because in my world it's a 4,096 format and has issues being converted to 3,840 by 2,160. I call it 2160p. It's in keeping with the naming convention. Ultimately, I call it UHD. The irony of it is that the Consumer Electronics Association (CEA) recognised that, yes, we should be calling it UHD, not 4K. Last year, the CEA added the '4K' to the 'Ultra HD' logo, but part of doing that means that they are actually suggesting that television sets accept 4,096 as an input. Now, the interesting thing is that the set has to do something with that 4,096 – it either has to convert it, or it has to crop it. And, the question is, what is it doing? Inquiring minds want to know.

You've said that realistically we would need to view content on a 12ft-wide screen to perceive all the detail in a 3,840 x 2,160 image...

Yes, we've actually done a little bit of human factors research. We went to a post-production house that did special effects, digital art. You can get as good a resolution in digital art as you can in any place, because you can control things on a pixel-by-pixel basis. At the time we did the experiment in picture size, it was done at 1080p using my projector

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Samsung's SUHD displays – 4K resolution and ready for HDR content

(the Joe Kane-certified Samsung SP-A900B). We moved the projector close to the screen so we could emulate the size of picture they were getting from their graphics monitors. Then we backed the projector out so the image got larger to the size of the plasma sets they were using, and then we backed it out further until it got to be 6ft wide. At that point... they instantly recognised that they were seeing things in the picture that they'd never seen before.

Artifacts?

Quality. Sometimes it was strictly just quality.

When you say 'quality', do you mean detail?

Yes. This is about being able to see the resolution of the image. On smaller displays, they weren't actually seeing everything that was in the picture. I backed the projector out to where I had a 6ft image. That, to me, was the threshold of how big the image needed to be to see what was in the image. With 2160p being four times the area, that becomes a 12ft screen and if we actually go to the 4,320 format – which is part of UHD – that requires a 24ft-wide image.

Where are we with the UHD standard presently?

We're at the beginning of a new system. Initially, manufacturers of TV sets that brought this format to us thought resolution was going to be enough to get the attention of the consumer. The people who are creating the content don't believe resolution is enough. First of all, I've tried to illustrate if you're not sitting close enough to the set, you're never going to see the resolution. Therefore, it won't mean anything if you're not sitting close enough to the set.

There are things that could be happening in this format because of current display technology. As an example, we can have High Dynamic Range (HDR) images, we can have much brighter images, we can

have images with much better colour than our current system allows. So, the people who are producing the content are saying, 'Look, if you want us to switch to a new format, we need something more than just resolution. We need HDR, we need colour, we might even need higher frame rates.'

So, the mantra in Hollywood is 'more, better, faster.'

Among the things being proposed is a complete new creativity in our content. If we run our frame rate at 120 pictures per second, we can acquire pictures from a few frames per second, all the way up to 120. In other words, we can acquire in variable speeds, but with 120-frame playback, we can repeat frames as many times as necessary to have stop-motion or time-lapse, as examples. We might shoot one picture every two seconds and project it at 120fps, but we can control how that motion looks by how long each frame is held on screen. This would give us a new creative tool, like that used in silent movies. The cameras and projectors were both hand-cranked, and the person cranking the camera would know enough to slow down the camera when he wanted one effect and speed it up when he wanted another effect. And the projectionist was as much of a contributor to that art as well, because the projector was hand-cranked. Since there was no audio on the film there was no need to be concerned what the variable speed would do to it. It was the coming of sound speed, 24 frames per second, that took away the variable speed option in the creative process.

Will parts of the UHD standard trickle out, or will there be an enormous fanfare?

I'm afraid the trickle out approach is what's going to happen. I'm taking the position that even if they trickle it out, as long as we know the goal, where we're going, all this coming out in pieces will at least be coming out in the right directions. Right now, it is

my opinion that a lot of changes that have occurred in our system have occurred without a rudder steering the ship. And I'm going to use HDMI as an example. They do incremental improvements with HDMI, but never seem to know where they should be going.

You recommended Display Port 1.2 as a carrier...

There is actually a 1.3 version, as of last December. As much as Display Port 1.2 could do much more than HDMI 2.0, they recognised they were going to run out of room, so they created a new version that was much better – which means they've gone way beyond anything HDMI could do.

Are we talking in the area of 16-bit, 4:4:4?

Yes, we're talking about being able to do 4:4:4 at 16-bit at high frame rates. This is what I mean when I talk about incremental improvements. I'm worried they're going to increment us to death. My hope for the industry is to at least say there is a goal to reach. I actually want a 16-bit half-float system, so we can have negative numbers. I actually want a container...

You mean a 'floating point' codec?

Yes. This is something that is common to computers today. They do 32-bit full-float. I think it's probably not practical for distribution purposes to go beyond a 16-bit half-float, but that actually gives us 48 bits per pixel. We're now talking about 8 or 10 bits per pixel, but a 16-bit half-float would give us 48 bits per pixel! We're never going to run out of room, no matter what we do. So, I would like to see a UHD ultimate specification: a target to get to a system which we'll 'never' have to change again.

The Ultimate UHD system does not take the display into account. Our current TV systems – for SD or HD – are all CRT-based. As these new display technologies have come out, we've had far greater capability than anything the CRT could do. But all those new technologies have had to be dumbed down to some of the CRT characteristics because that's the specification. Each new technology that comes out – OLED, LCD, DLP, LCoS – each of those technologies has its good points, things it can do over anything else. Why not have a system that can play to these displays? What I want UHD to be is a container of a programme. That container would have a capability of lots of high dynamic range. And any colour space we want.

Up to rec.2020 and beyond?

Yes, the container will be larger than anything we want to display. There are a lot of good reasons for doing that. Years down the road, we can come up with a new display. We've already got the container full of the content. The container is big enough to hold everything we can possibly capture: the bit rate, the colour space, everything. So when this new display tech appears we have the content to feed it.

A lot of people have bought 2160p sets, and it would be nice to know they could maximize the capabilities of whatever they bought...

Absolutely. They will get better pictures if we deliver a container that has 4:4:4 in it. Almost every TV set

on the market has a PC mode that will actually make the set look like a PC monitor, and it will accept a 4:4:4 signal and it will pass that 4:4:4 all the way through. So, if we deliver a container to your home, you may only have 709 colorimetry, and you may only have a D65 greyscale, but if I can pull out a 10-bit 4:4:4 signal and deliver it to an 8-bit set, that will still produce a better picture than if I deliver an 8-bit 4:2:0 HD signal to the set. We can pull things out of the container that will make your existing 1080p set look better than you've ever seen it before.

The system I'm proposing is good for everyone. It's good for the guy who bought a 720p set, the guy who has the 1080p set, because it can deliver better content. All the set has to do is identify itself, and what it's capable of doing. That means that everyone gets to participate in the value of UHD. I want everybody to participate in better pictures!

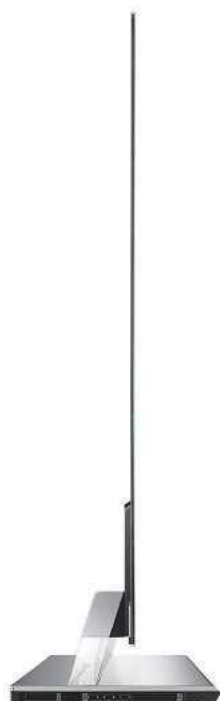
Do you see OLED technology as the way forward in terms of ultimate picture quality?

The most important thing I've seen of OLED is the contrast ratio, and that's separate from light output. LCD displays can put out much higher levels than OLED, but OLED sets have a better black than most LCD displays. This is important in itself and in how it has pushed LCD manufacturers into trying to do better with their sets. But there are problems with OLED technology in large sets, the size needed for UHD. Among them is that light output in small areas of the picture is higher than light output in large areas of the picture. It's going to be an issue for some time to come, until we get superconductors, where we don't lose power by trying to light a large area.

How is HDR going to be standardized? We're seeing Dolby Vision appearing in cinemas in the US, but how is it going to manifest in the home?

The majority of people who produce content see HDR as one of the most attractive parts of the

'OLED sets have a better black than most LCD displays,' says Kane



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potential of UHD. There are a number of approaches to making it happen. You've mentioned Dolby, certainly Technicolor has a method, Philips has a method, Samsung has a system...

I'm on a committee for the American Society of Cinematographers (ASC). We're going to be taking a number of displays that have HDR capability, and we're going to be feeding them HDR signals. We're asking cinematographers what they think. We want them to look at the options in HDR, looking at content that they've shot. We're literally going to be asking questions: 'What do you think?' The idea is that they're going to form an opinion, and try to influence the industry, where we go in HDR, based on what they would like to see in the marketplace. I'm enthusiastic about being a part of this because we're looking at this from a consumer point of view.

I applaud Dolby for the demos they've been doing. They, more than any other entity, have promoted HDR. I'm not confident in their numbers for anticipated light output. They talk about consumers wanting almost an infinite amount of light, relative to what we can reasonably get out of a set today.... You can't watch an 'infinitely' bright picture in a dark room. You'll have noticed in my theatre, I backlight the screen, because I'm going way above 16fL. I can't watch this bright image without a backlight.

There's another problem it's going to create: if consumers get used to HDR, they're going to want everything they watch to be HDR. Consumer TV manufacturers will be forced to create a pseudo HDR. They will have to allow any standard dynamic range content – this 8-bit stuff that doesn't have enough bit-depth – and stretch it into an HDR image. They're likely going to create some pretty ugly pictures.

A bit like turning a movie into 3D in post?

Yes, and I'm worried about this, and it's one of the reasons I want content delivery to be a higher bitrate, even if we apply an in-set HDR capability. If we have more bit-depth to start with, we actually have an ability to create good HDR pictures. They probably won't match what would be done in post-production but be acceptable. This is why I want UHD to be all about the delivery system, the container that's going to house our huge capability in capturing an image.

Who do you need to convince?

When I talk to the post-production world about this, they say, 'So, who's arguing with you? Why are you getting any resistance?' The people who are questioning the idea are the people who have to manage 16 bits. In other words, they can do it in a computer. They're doing it... but not in the division that sells consumer TV products. So, we're talking to people who have never had to think in these terms. My experience is limited to the manufacturers participating in the ASC activity. But they're beginning to realise it isn't as difficult as they thought.

I'm not asking for anything that can't be done. A lot of the system I'm talking about is already in place in digital cinema. We already deliver a container to a digital cinema. Not every consumer has the same connection that a theatre has. I will deal with the fact that getting that many bits to somebody seems like



an impossible job for a lot of people who don't have a good internet connection. But those same people are on Netflix now and/or some other provider. What they don't necessarily understand is that in the container – and Netflix sends a container – is a 480 version of the programme, a 576 version, a 720 version. Depending on your network speed, you get out of that container what your system will accept.

Going back to physical media, the Blu-ray Disc Association now has a standard for UHD Blu-ray. They've decided on 10-bit pixel depth...

Yes, and 4:2:0 colour subsampling. What worries me is I don't want to do the larger colour space options at 10 bits. There are several companies that are proposing HDR at 8-bit. I'm sorry! Not real High Dynamic Range – you can't do a good job of it at 8-bit. As far as I'm concerned, you need 12-bit, but we're going to get away with 10 for a while. Yes, you can put those bigger colour spaces down in 10-bit, but you're going to have problems in the display. I don't think you're going to get the kind of picture quality we'd like to see. Right now, I'm a fan of internet delivery because its delivery can be dynamic. A software update to the player would take it beyond today's encode, decode capability. Blu-ray, on the other hand, is hardware-based. What you can do in the player is locked in to what was set several months ago. We can probably go to 12-bit, 4:4:4 much faster over the internet than will ever happen with Blu-ray.

A lot of people are still keen on physical media, though. It's the best way to watch movies!

For the time being, yes, and I understand the position as I have a fairly large library of material. I understand collecting things and putting them on the shelf. I am being swayed away from it in that we may be able to completely outdo the Blu-ray format with 'net delivery before UHD Blu-ray establishes a beachhead in the consumer market. Unfortunately I see the UHD version of Blu-ray locked in a period of time, yesterday, because it is a hardware-based solution. We now potentially have a goal for UHD far beyond what I'm reading as a capability for UHD Blu-ray. This may be history repeating itself, with the increments Blu-ray went through before it finally got to a functioning system – and caught up to HD DVD! ■

Dolby Vision – part of the new Dolby Cinema format alongside Atmos audio – is leading the HDR charge

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- A)** Into The Blue
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- C)** The Blue Lagoon

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Competition rules

1. The first entry drawn at random will win the prize. **2.** Only one entry per person/household; multiple entries will be discarded. **3.** Entrants from the UK only. **4.** Employees of MyTimeMedia Ltd and companies supplying competition prizes are not eligible to enter this competition. **5.** Please ensure your personal details are correct, as they will be used to contact you if you win. **6.** No alternatives, cash or otherwise, will be offered to the winner as prizes. **7.** The editor's decision is final. **8.** The closing date for entries is August 7, 2015.

CINERAMA

WHEN MOVIES WENT WIDE



Long before IMAX, audiences were astounded by a film tech called Cinerama. **Richard Holliss** looks back at the pioneering widescreen format... that you can now enjoy on Blu-ray

Top: the Cinerama travelogues took audiences all over the globe, including to the Egyptian pyramids

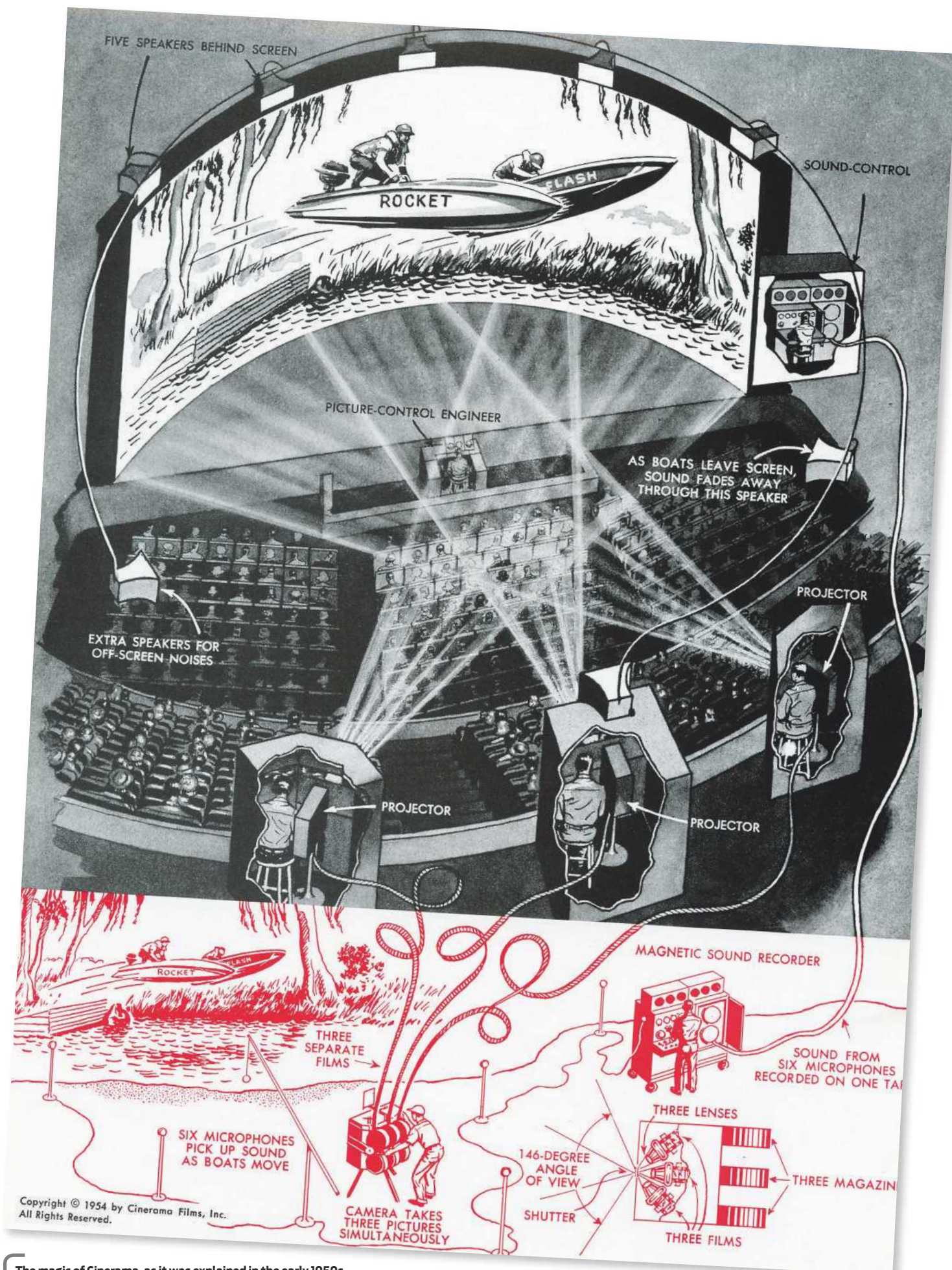
AT THE END of this year, movie fans across the country will pile into their local state-of-the-art IMAX cinema to watch the latest chapter in the *Star Wars* saga, hoping to be blown away by the sound and image as well as the return of Han, Luke, RD-D2 *et al.* Cinema is about spectacle – but that's not a new idea...

A little over 60 years ago audiences screamed and gripped the armrests of their seats when, to their amazement, they found themselves lurching to and fro, not with the crew of the Millennium Falcon, but in the company of thrillseekers on a harrowing New York rollercoaster ride – courtesy of a new form of film technology called Cinerama. It was a reaction

that the Hollywood studios, aiming to win back a public besotted with TV, were hoping for.

In fact, the arrival of Cinerama couldn't have been more timely. With box office receipts falling by 50 per cent between 1948 and 1952, the majority of the Hollywood studios (with the exception of Walt Disney – the only producer to fully appreciate the potential of television) retaliated against home entertainment with a number of popular, if short-lived gimmicks, including 3D and Smell-O-Vision. Neither of which could rival the public's positive response to widescreen films.

Acclaimed at the time by esteemed film critic Bosley Crowther as 'an historic event in the history >



The magic of Cinerama, as it was explained in the early 1950s



Left-to-right: *This is Cinerama*, *Cinerama Holiday* and big-budget feature film *How The West Was Won*

of motion pictures', the first Cinerama film *This Is Cinerama* (1952) opened with a brief prologue in black-and-white on an average-sized screen hosted by the documentary filmmaker and official voice of Fox Movietone News, Lowell Thomas. Then, with an explosion of seven-channel stereophonic sound, the curtains drew back to a full 146 degrees and the world's first commercial widescreen format burst forth onto a 51ft screen. To further enhance the experience for audiences, a sound engineer sat through each and every performance mixing the audio tracks to achieve the most impressive multispeaker effect. Cinemagoers lapped it up – *This is Cinerama* was an enormous success, grossing nearly five million dollars on its initial release. Widescreen cinema was born, and only a year later the first CinemaScope movie hit theatres.

Three times the trouble

To reach fruition, Cinerama had to overcome a number of difficulties, the most problematic of which was achieving the correct perspective when filling a movie screen that was built to extend to the periphery of the human eye.

Fred Waller (the man who devised the Cinerama process and whose earlier multi-camera/projector Vitarama system had been successfully adapted into World War II gunnery training devices), used three 35mm cameras with 27mm lenses, each set up to cover one third of the complete image. To further complicate matters the cameras were designed to film across each other's point of view. In other words, the left-hand camera shot the right-hand side of the completed picture and vice versa. In theatres, three projectors, electronically locked with selsyn motors and placed across the back of the auditorium, ensured a perfectly synchronised panorama on the newly fitted screen.

Unsurprisingly, there was marginal overlap where the images combined, particularly noticeable in the earlier travelogues. For the only two commercial feature films shot in the



Cinerama process – *The Wonderful World of the Brothers Grimm* (1962) and *How the West Was Won* (1963) – the directors would line up, where possible, the overlapping edges of the pictures against a vertical object, such as a tree or a post.

The limitations of the format during filming and the cost of customising cinemas to show the films resulted in Cinerama eventually being superseded by rival single-film strip formats, including CinemaScope, Panavision, Todd-AO and VistaVision. In fact, there were only seven three-camera/ three-projector Cinerama movies made between 1952 and 1963, including a total of five travelogues.

'In the 1970s, the format gave way to new and more elaborate largescreen systems such as Omnimax and IMAX'

The majority of these included impressive aerial photography of America's cities and national parks, accompanied by lush musical scores from Dimitri Tiomkin, Jerome Moross and Alex North. Due to the subject matter, the movies were also considered very patriotic at a time when the Cold War dominated the headlines. Cinerama is, after all, an anagram of the word 'American'.

The last two films in the format (the aforementioned *The Wonderful World of the Brothers Grimm* and the star-studded *How the West Was Won*) were produced by Metro-Goldwyn-Mayer and shot in the newly christened, but short-lived Super Cinerama. But the films' directors, including Henry Levin, John Ford and Henry Hathaway, all struggled to cope with the unwieldy 150-pound three-lensed camera, while the studio pressured them to avoid retakes in order to save on the colossal cost of film stock.

After 1963, Cinerama continued in name alone, the cumbersome technology being replaced with a single-lens 70mm format. *It's a Mad, Mad, Mad, Mad World* (1963) was the first film shot on one piece of film instead of three, and this was followed by a number of other 'Cinerama' movies shot in various

1962 was the final year for three-strip Cinerama movies





Panavision formats including *Grand Prix* (1966) and the seminal *2001: A Space Odyssey* (1968).

After a limited single-lens re-issue of *This Is Cinerama* in 1972, the format gave way to new and more elaborate largescreen systems such as Omnimax and IMAX. Ironically, like Cinerama itself had been in the '50s, IMAX technology was first used for documentary subjects (Disney's *Fantasia 2000* being the first actual feature shot in the process). Since then, however, the IMAX format has been adapted for local multiplexes and by numerous studios and directors, added 3D to its repertoire and made a play for domestic setups... provided you have £1.8m.

Cinerama Alley cats

Skip forward to the present day, and home cinema enthusiasts can get a taste of the original Cinerama experience. Thanks to historically-focused independent distributor Flicker Alley, all five of the Cinerama travelogues are now available on Blu-ray and DVD in a unique format that recaptures the illusion of Cinerama's original deep-curved screen. Called Smilebox, it made its debut on the MGM Blu-ray release of *How the West Was Won*. Restoration and Smilebox simulation of MGM's saga of the old West was easier thanks to the excellent condition of most of the archive material. However, the only prints in existence for the Cinerama travelogues were all in poor shape, so a lengthy process was undertaken by project head David Strohmaier and specialist cleanup teams at two digital houses (Furnacecore and Image Trends), including colour grading the three separate camera negatives so they matched perfectly on screen, and digitally removing camera flaring at the image join. The final results are startling restorations from analogue film to hi-def digital masters.

Of course, it goes without saying that to truly appreciate the Smilebox format and the impressive dimensions of Cinerama you need a 50in-plus TV, or, better still, a home projector. Then you can bring the white-knuckle thrills of *This is Cinerama's* rollercoaster into your very own cinema room ■

Were you lucky enough to see Cinerama at your multiplex? Email letters@homecinemachoice.com



2001: A Space Odyssey was screened in Cinerama theatres, but shot on 65mm



CINERAMA ON BLU-RAY

Get these discs and go wide and wild

This is Cinerama

The format originator, released in 1952, takes you on a rollercoaster ride, down to the beach and to a Spanish bullfight among other places. Flicker Alley's BD release includes both 5.1 and 2.0 mixes.

Cinerama Holiday



Journey around Europe and the US in this second Cinerama flick, restored from the original negative.

Seven Wonders of the World



More globetrotting as Lowell Thomas jumps on a plane to visit some of Planet Earth's most eye-opening sights – and more than seven, actually – beginning with the Egyptian pyramids.

Search for Paradise

Lowell's off again – this time 'following the footsteps of Marco Polo', which means panoramic vistas of the Himalayas. Extras include original location footage.

South Seas Adventure

Orson Welles narrates this final Cinerama travelogue, which gives you a taste of life in the far-flung islands of the Pacific. Surf's up!

Windjammer

Actually shot in rival format Cinemiracle but also screened in Cinerama theatres, this 1958 documentary follows the 30,000-kilometre journey of a Norwegian sailing ship, backed up by a rousing orchestral score.

How the West was Won



MGM's BD release of this star-studded Western (Henry Fonda, John Wayne, Gregory Peck, Jimmy Stewart)... debuted the Smilebox format for domestic Cinerama back in 2009 – as well as a flat 2.89:1 presentation.



Room with a 4K view... and Atmos

This cutting-edge home theatre offers 3D audio and is primed for 4K movies. **Mark Craven** pulls up a pew

THE CUSTOM INSTALL world is where we naturally expect to find state-of-the-art cinema rooms dripping with new technology, and this domestic theatre is no exception. Undertaken by CEDIA-accredited installer Kent Home Cinema Centre, it tackles both next-gen video and audio, courtesy of its Dolby Atmos

talents and bigscreen 4K visuals. This is a movie den for 2015 and beyond.

Total transformation

The owner approached Kent Home Cinema Centre demanding the transformation of an existing, rarely used TV room into a dedicated

home cinema room for movie, TV and sports viewing, and with a Smart control system that could be extended to other rooms in the house in the future.

With the customer having no pre-set audio-visual system in mind and happy to take recommendations to hit his needs and budget, the installers arranged for a visit to the Artcoustic demonstration centre to give him a chance to hear a Dolby Atmos array in full flight. And following that eye-opening (or



KIT CHECKLIST

SONY: VPL-VW500ES native 4K projector
SCREEN EXCELLENCE: Reference fixed 2.35:1 screen with Enlightor 4K acoustically transparent fabric

DENON: AVR-X7200 AV receiver

ARTCOUSTIC: 3 x Spitfire SL 8-4 front speakers; 4 x Diablo SL surround speakers; 4 x Architect in-ceiling overhead speakers; Performance subwoofer powered by Artcoustic PA750 subwoofer amplifier

SKY: Sky+ HD

OPPO: BDP-103D Blu-ray player

ROKU: Roku 3 media player

LIGHTING: Bespoke RGB LED lighting effects controlled via Rako and DMX

SEATING: 8 x FrontRow home cinema seats with integrated Clark Synthesis Gold tactile sound transducers



Midway through the six-week build, and the 4K Sony projector is installed and raring to go!



A stud wall was fitted at the front of the room, designed to accommodate the LCR speakers, subwoofer and projector screen

perhaps ear-opening...) experience, he quickly decided to include the 3D audio format within the room's specifications. A 7.1.4 system was decided upon, and Kent Home Cinema Centre worked closely with both Dolby UK and Artcoustic to finalise the planned speaker positions, taking into consideration the size of the room, its layout, and the need to work within the funky, blue-lit bar area at the rear.

The speaker setup uses a quartet of in-ceiling models (from Artcoustic's Architect

range) for the Atmos height channels, plus Diablo SLs for the four surround channels and three Spitfire SL 8-4s for the front LCR soundstage. The latter three are housed in a purpose built stud wall, finished with a stretch fabric for a neat visual flourish.

The Artcoustic speakers all offer high sensitivity, meaning they can be driven easily by the room's chosen AV receiver, a Denon AVR-X7200. This model is the brand's current flagship, and will be able to

be upgraded to support DTS:X later in the year (plus HDCP 2.2 compatibility), giving this cinema another tick in the futureproofed box. It's a nine-channel design, meaning an additional Nuvo stereo amp is employed to drive two of the overhead speakers.

World-first woofer

Special mention must go to the room's subwoofer, an Artcoustic Performance. This, it transpires, is the world's first domestic

installation of the new-to-the-range model. The Performance uses six 10in low-frequency drivers and is rated to reach down to an infrasonic 15Hz, and the stackable design means accommodating a pair, if needed, is straightforward.

The sub is fed by a separate 750W power amp, housed in a temperature-controlled kit rack at the rear of the room. Here it is joined by the Denon receiver, a Sky+HD box and an Oppo BDP-103D Blu-ray player. The rack also

contain amps for the tactile transducers (from US brand Clark Synthesis) that are fitted to the eight FrontRow cinema seats for an extra dimension of filmic fun!

As for the video side, a ceiling-mounted Sony VPL-VW500ES projector offers a native 4K resolution for future sources, and will upscale the owner's BD collection with care. Filling out almost the entirety of the front wall is a Screen Excellence Reference fixed-frame projector screen – 150in across (the brand >



The installers worked with both Dolby and Artcoustic to accurately plot placement of the ceiling speakers



The pelmet that runs around the rim of the ceiling is used to house downlighters and LED strips, and provides cable management



A trio of Artcoustic Spitfire SL 8-4 speakers were installed for the front soundstage. Each uses eight midrange drivers and four tweeters



Seating for the two main rows is from FrontRow – and each chair is fitted with a tactile transducer



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This rear bar area offers space for four more movie fans



All the room's lighting, from the LED run in the ceiling pelmet to illumination at floor level, can be controlled via the owner's iPad



A plinth was created to raise up the second tier of cinema seating, and make space for the bar area



Low-end grunt is delivered by an Artcoustic Performance sub – in fact, this room is the first in the world to take delivery of the brand's new bass beast

caters for those wanting 300in screens, too), and at the oh-so cinematic 2.35:1 ratio. It uses the brand's 4K Enlightor material, an ISF-certified, ultra-fine weave tailored for Ultra HD resolutions and beyond. It's acoustically transparent, too (crucial considering the positioning of the front speakers) and is flanked by a 3.75in black velvet border for elegant framing.

There's more to this room than the next-gen hardware, of course – the installers

have also created a glamorous space that anyone would want to kick back in with a mountain of popcorn and a Blu-ray boxset. Clever lighting touches – delivered by a Rako system – abound, from the LED strips illuminating the pelmet around the room's ceiling (which also delivers hidden cable management) to the low-level lighting guiding visitors down the stairs to the front row of seats. A number of mood settings can be selected, all from an easy-to-use iPad linked

to a Total Control home automation system from URC. The tablet also gives the owner one-touch control over the cinema room hardware, making watching a movie a breeze. The URC system will be linked to other rooms in the next few months.

We're told that the finished theatre, with its enveloping 11-speaker audio system and pristine visuals, is getting much more use than it did when it was a simple TV den. Now why is that hardly surprising? ■

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DLA-X500R has been awarded:



DLA-X700R has been awarded:



* The 2014 range of JVC D-ILA Projectors consists of model numbers DLA-X900R, DLA-X700R, DLA-X500R. Visit www.jvc.co.uk for more details. ** Contrast ratio specifications are for the DLA-X900R. 3840x2160 (4K e-shift3 – not native 4K).

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REVIEWS

→ **HARDWARE HIGHLIGHTS** SONY Super-thin 4K Android TV & SRS-X11 Bluetooth speaker **ARCAM** High-end soundbar/subwoofer **LOEWE** 55in 4K TV **SVS** Sub/sat 5.1 speaker array **PIONEER** Dolby Atmos-enabled seven-channel AVR **PHILIPS** 5.1 soundbar! **ECLIPSE** Time Domain dual-driver subwoofer **ACER** Full HD laser/LED projector & Revo media player **AND MORE**



Ultra HD hit

LG's UF850V is a crowdpleasing 65in screen mixing Smart skills with smart design. See p52

HCC RATINGS KEY...

Outstanding	★★★★★
Above average	★★★★☆
Acceptable	★★★☆☆
Disappointing	★★☆☆☆
Dire	★☆☆☆☆

This is an eye-catching 4K screen from Sony, but **Steve May** would rather be dreaming of electric sheep

Android TV needs a reboot

AFTER EIGHT MINTS and vinyl records. These are just two things thinner than a Sony X9005C 4K/Ultra HD TV. It's not much of a list, granted, but then this flagship thin-iron is almost incomprehensibly svelte. Indeed, you could be forgiven for thinking it an OLED panel rather than edge-lit LCD...

The set's girth increases marginally at the bottom, but only to accommodate electronics and jack pack. It is, simply put, a dashing blade of a gogglebox, with most of its frame measuring a measly 4.9mm deep. Sony has been knocking it out of the park for the past couple of seasons when it comes to TV design, but this is out of the park and into the forest.

The KD-65X9005C is notable for more than its looks, though. It's the champion of a new line of connected TVs that use the Google Android platform. Unfortunately, that's when things start to get ugly.

Not to sugar coat it: the Android OS, as executed currently, provides a miserable user experience. While rival brands have strived to make their Smart TVs simpler, Android adds layers of complexity.

This is evident from the get go. The TV boots with the familiar swirling Android balls. You're then asked to sign in to your Google account, entering a code offered by the set into a setup page on any networked browser. The TV orchestrates this drama with a floaty graphic and soundtrack borrowed from the PS4.

The KD-65X9005C checks for any updates and prompts you to download. My first update took an age, and that's before it 'optimised' some 181 resident apps. As a user experience this sucks lemons. When the TV did return to life, the first message my Google-powered Android TV offered me was 'Can't reach Google at the moment.' At that point I knew what it must have felt like trying to contact the Philae comet lander.

The main Android display features tiered shelves, starting with Featured Apps (which by default comprises a cupboard of old streaming services, Amazon Instant Video, Netflix and DailyMotion). Below this is an input access bar which puts nonsense like 'CAM Service List' and 'Analogue tuner' in front of the HDMI inputs. To get rid of these you have to manually edit the input list via the External Inputs menu; this takes you through to a sub-screen with sub-sub menus for AV Preset, IR Blaster setup and BRAVIA Sync Settings. You and I may have a stab at navigating this breadcrumb trail but folks in the real world probably won't bother.

That AV Preset menu lists all input options in alphabetical order, beginning with Analogue (clearly useful). It's here that you get to hide or rename inputs, changing them to Blu-ray, Game or a custom tag.

But it's not just such clunky operability that grates. The language used throughout is wilfully unintuitive and non-inclusive. Venture off the beaten path and the Android platform bamboozles and infuriates. Downloaded Apps eagerly exposes the user to a full carriage of system mechanics – Activity Stub, BivService, BluetoothExService, CEB. What do they mean? I have no clue, and frankly I don't want to know. This is a telly for goodness sake.

Still to catch up on catch-up

To add additional services, you head to the Google Play store. You can install the likes of Plex and Vevo, but there are no catch-up TV apps beyond BBC iPlayer. Sony will rectify this with integrated YouView, which will be available as a firmware update in due course. >

The smaller Bluetooth touchpad has an integrated microphone



The TV's feet can also be mounted nearer the centre, giving it a narrower footprint

SHARP SHOOTER

Colin Firth is dressed to kill in *Kingsman* on Blu-ray, p96

AV INFO

PRODUCT:
Ultra-thin LED
4K Android TV

POSITIONING:
The designer hero
in the 2015 Sony
UHD line-up

PEERS:
Panasonic
TX-65CX802;
Samsung 65JS9000





The X9005C is Sony's thinnest TV yet

YouView will bring with it a full complement of catch-up, and given how great the YouView environment is, this could be the making of this set. It's not available at launch, though.

There are some nice elements to the interface. The Android TV Guide uses an overlay, rather than a dedicated TV window, augmented with live audio. Select a show and you're taken to a more detailed synopsis with a breakdown of the cast and crew, and Related Content – similar themed shows and the like.

'The X9005C is a notable technical creation, but the current Android OS is a disappointment'

There's also integrated Twitter support. Tweets related to current programmes appear in this window; you can set keywords for the set to look out for. I report this merely as a courtesy. Twitter build into TVs is #lame. Sony's Discovery Bar is still going though, which is good news.

Connections comprise four HDMI inputs, all of which are v2.0 and HDCP 2.2 compliant. There are also three USBs, Scart, component video with phono audio, an optical output, Ethernet, dual satellite tuners and Freeview HD. Resident Wi-Fi is dual band, allowing you to connect via 5GHz or 2.4GHz. The set ships with two remotes: a standard IR doofer and a Bluetooth touchpad with integrated mic.

Moving quickly on...

While Google Android TV is a mess (and presented at 2K resolution, rather than 4K), Sony at least does what it does well enough. And in terms of AV performance, this not-quite-flagship set generally impresses.

Sony's new 4K Reality Creation Pro technology does a wonderful job interpolating extra information from your sources. A new set of look-up tables are built-into the TV's chipper, and detail extraction from objects, be it background or foreground detail, is remarkable. When the domed arena disintegrates at the climax of *Hunger Games: Catching Fire*, there's a big profile close-up of Katniss Everdeen's face, as she lies on the ground battered and barely conscious. Sony's X1 processor adds photographic levels of pixel information. It's not native 2160p, but it could easily be mistaken for pukka UHD.

Black level performance is okay but not outstanding. While there's no doubting the brilliance of Sony's drive for thinness, it has its consequences. Edge lighting is far from uniform, with light leakage blooming around the bezel area. As such, it's not at its best during dark room viewing.

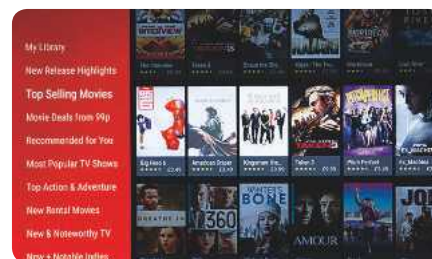
The onboard Netflix client is 4K-enabled, and native Ultra HD content looks great, with depth and detail aplenty drawing you in. The golds in *Marco Polo* have valuable lustre, skin tones are weathered and naturalistic. And thanks to the Triluminos display, the Sony doesn't shirk when it comes to beautiful blues and verdant greens.

The picture mode has various default settings, including Standard, Vivid, Cinema Pro, Cinema Home, Sports and Game. Standard is very well-judged, and will suit most tastes; there's a lot of tweaky control available should you feel the need.

Unlike Sony's other 4K heroes, the audio system on the X9005C is integrated into the back panel with four drivers down-firing. The result is perfectly acceptable, but lacks the presence or width of Sony's magnetic-fluid, front-facing speaker designs.

There's little doubt that the X9005C is a notable technical creation. Image quality, both Full HD and native UHD, is good, albeit with caveats regarding edge-lighting uniformity and black level that aren't a major surprise given the super-slim design. However, the Android Lollipop OS is a considerable albatross, which presents buyers with a real dilemma. The only sensible course of action is to wait until the YouView firmware update lands. Let's be hopeful it improves the TV's usability ■

ON THE MENU



→ Android TV gives you access to the Google Play Movies store, which has a decent content selection and a slick design. The latter is mostly true of the Sony's overall UI, but usability could be improved

SPECIFICATIONS

3D: Yes. Passive
4K: Yes. 3,840 x 2,160
TUNER: Yes. Freeview HD, DVB-S2 satellite
CONNECTIONS: 4 x HDMI (v2.0); component video; Scart; Ethernet; 3 x USB (one USB 3.0); CI slot; built-in Wi-Fi
SOUND: 4 x 7.5W
BRIGHTNESS (CLAIMED): N/A
CONTRAST RATIO (CLAIMED): N/A
DIMENSIONS (OFF STAND): 1,451(w) x 835(h) x 39(d)mm
WEIGHT (OFF STAND): 23.2kg
FEATURES: Dual-band Wi-Fi; USB and network multimedia playback; 4K Reality Creation Pro with X1 processor; Discovery Bar; integrated Twitter; Android OS; Netflix; Amazon Prime; will be firmware updated to offer YouView; Standard, Game, Sport, Animation, Vivid, Custom, Cinema preset modes; Flat Area Detection; Triluminos display

HCC VERDICT



Sony KD-65X9005C

→ £4,000 approx → www.sony.co.uk

→ Tel: 0845 6000 124

HIGHS: Astonishingly slim design; solid 4K upscaling; lush colour reproduction

LOWS: Excruciating Android TV user interface; backlight uniformity issues; currently missing YouView client, so no catch-up beyond iPlayer; no HDR update planned

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★

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Pioneer returns to the £500 AVR killzone with a Dolby Atmos model. **Mark Craven** reports

Plenty to play with

LAST YEAR, PIONEER dipped its toes into the Dolby Atmos waters, but only with its upper-tier LX-branded receivers. In 2015, it's lowered its entry price for 3D audio to a tempting £500, in the shape of the VSX-930.

This is good news. Except perhaps for those who bought the non-Atmos VSX-924 last year that this model replaces – but, hey, you could probably still flog that receiver second-hand for £200.

Dolby Atmos hasn't quite been the breakout hit that home cinephiles were wishing for – nor the hardware manufacturers. Excitement has been tempered by a dearth of software, which AV brands like Pioneer can do nothing about. However, titles are still arriving and early adopters should always remember that the prospective Blu-rays are generally limited by which films actually had Atmos mixes in cinemas in the first place.

The 3D audio world is moving fast, though, and another (bigger) worry for Atmos aficionados is the launch of DTS:X. This sound format looks like being a genuine rival, and many studios will surely support it on their Blu-ray titles. And the Pioneer VSX-930 doesn't support it, and won't be able to via firmware, either.

Therefore, this new amp is already looking like a bit of a compromise. Anyone genuinely interested in next-gen object-based sonics and buying a new AVR in 2015 will most likely want to cover their bases by getting a model ready for both Atmos and DTS:X. And those content to run a 'flat' 5.1 or 7.1 speaker array will not be wowed by the VSX-930's Atmos talents.

Video star

While it lacks a level of futureproofing in terms of audio formats, the VSX-930 is at least



The remote is crammed with buttons



AV INFO

PRODUCT:
7.2-channel Dolby Atmos AVR

POSITIONING:
Sits below Pioneer's LX-branded models

PEERS:
Onkyo TX-NR646;
Sony STR-DN1060



Pioneer's AVR styling hasn't changed since last year



loaded with up-to-the minute HDMI connectivity. The receiver features seven inputs (one front-mounted) and two outputs. HDCP 2.2 copy protection support is provided and HDMI 2.0 specification includes 4K/60Hz passthrough with 4:4:4 colour sampling. This is an improvement on last year's range, when HDCP 2.2 was omitted.

Both Wi-Fi and Bluetooth are built in. The former is now fully integrated – on the VSX-924 predecessor you had to connect a free dongle – and operates on both the 5GHz and 2.4GHz frequency channels. Two stubby antennas adorn the rear plate.

Design wise, the VSX-930 looks like every £500 Pioneer AVR from the last few years. In fact, the front fascia layout (with large volume and source knobs flanking the central display and a few buttons underneath) is identical to the VSX-924. It's quite stylish, in truth, particularly in this ninja-black livery, and seems competently put together. The weight is an easily manageable 9.8kg.

The view around the back is refreshingly uncluttered – AVR makers, targeting this price point at least, are beginning to realise that an avalanche of analogue inputs is unnecessary, and perhaps daunting to potential buyers. So as well as the HDMI ports, for lacing up sources you get just a single component video input (but no output), lone coaxial and optical digital audio inputs, a couple of composite video stages and some stereo audio sockets. There's also Ethernet and IR repeater ports. Don't look for USB here – the VSX-930 only offers one input, sited on the front panel.

Buyers get a level of tweaks, modes and functionality far greater than they might expect from a £500 amp. On the networking front, the AVR integrates Spotify Connect and vTuner internet radio, and flaunts AirPlay and HTC Connect compatibility. And, naturally, it will play media files stored on your home network or from a USB device. Hi-res audio support extends to DSD 5.6MHz, 192kHz/24-bit FLAC, WAV, AIFF and Apple Lossless, and multichannel WAV and FLAC. Pioneer's Advanced Sound Retriever feature is again present to improve the quality of compressed formats such as MP3.

Multizone support includes the ability to run HD audio and video to a second room. There are dual subwoofer pre-outs, should your cinema have a twin bass rig.

The VSX-930 packs Pioneer's MCACC Pro auto calibration suite, which you can run in either Full or Auto mode. As the former only takes around 10 minutes to churn through its repertoire of noisy bleeps, you may as well opt for that. Once it's finished, you can check the data settings to see what's been applied.

The user interface is, as we're used to saying with the majority of AVRs, uninspired. It's all a bit low-res and dour, and even the graphical representations of your speaker layout look quickly drawn. But it's straightforward in terms of structure, with a three-panel homescreen guiding you towards Network, MCACC and Setup.

Note that the VSX-930 doesn't automatically run a setup wizard on first boot. You are left to your own devices. Of course, if one of those is a Smart device, you can install

the Start-up Navi app which holds your hand during setup.

In general, I found the Pioneer's menus ponderously slow to appear at times, and the remote control is hardly the most intuitive. In all, the basic user experience could do with a dollop of oil. The iControl AV5 app, on the other hand, is a masterclass in slickness.

Pioneer's precise spirit

Connected to a Monitor Audio MASS 5.1 system, and with Onkyo upfiring speakers to deliver Atmos height for a 5.1.2 setup, the Pioneer proves to be a precise, immersive listen, always retaining a controlled edge rather than letting itself get carried away.

The Atmos mix on Warner's *American Sniper* Blu-ray (see page 94) is endowed with numerous front-to-back object tracking and specific effects placement, and the VSX-930 laps it up. When Chris Kyle is on the gun-range during his early training, the shots of his colleagues left and right zip towards their offscreen targets with speed and clarity, finishing with a tight, low-end thud.

Multi-layered, bombastic movie moments are deftly handled. The over-the-top, longwinded car/plane chase/fight sequence from *Fast & Furious 6* is presented as a composed barrage of squealing tires, throaty engines and pulsating score. Foley effects are cleanly picked out. And when Dominic Toretto (Vin Diesel) unloads his pump-action shotgun within the plane's cargo hold, it packs a metallic, largescale punch.

Fed the Dolby Atmos demo disc (worth snapping up if you can find one), the Pioneer

serves up the wraparound sonics of the *Amaze* trailer with more pin-point accuracy, dripping rain down upon my listening position. I did, however, resort to raising the levels of the upfiring channels (marked as TMDr and TMDL in the Channel Level menu) beyond their EQ'd setting.

Switching off the settings delivered by the MCACC system, meanwhile, reduced the tightness and clarity of the dialogue channel, but did return some body to the

'Precise and immersive – Pioneer's VSX-930 handles multichannel movie mixes with pin-point precision'

front stage. It also seemed to smear some of the amp's directionality; MCACC no doubt works hard to fettle your surround field. The sound overall is rather clinical, however. Other AVRs have a more airy, diffuse, spacious sonic signature.

Last up on my movie list was John Carpenter's *Halloween* (35th Anniversary Edition Blu-ray). This has a frankly terrifying, but very uncluttered soundmix, and the VSX-930 delighted in conveying the synth-delivered jump scares.



Use the front mic input to run the MCACC calibration

The amp is rated at 150W per channel, but Pioneer's fine print reveals this to be a 6-ohm figure, with 1% THD and a 1kHz (rather than full-band) measurement. In reality, it has enough power to fill a regular room, but begins to lose its poise when you get to serious levels.

All home cinema amps are now expected to offer a sideline in music, and this one is up to the task of getting your feet tapping. There are plenty of DSP modes to play with. Ext Stereo feeds your two-channel sources to your entire array (even your height speakers), while Classical makes a decent fist of turning your room into a cavernous space, courtesy of a heavy reverb effect. I spun Led Zeppelin's *Kashmir* on CD with this setting. It sounded weird, but not in a bad way.

Joe Bonamassa: An Acoustic Evening at the Vienna Opera House provided a change of pace. Prologue's Blu-ray includes a DTS-HD 5.1 option; soon I was relishing the bluesman's soft guitar licks centre-stage while delicately plucked violins emanated wide left. The live nature of the recording was always obvious.

Two buttons on the Pioneer's handset are key for system fiddlers – Audio P(arameter) and Video P(arameter). The former of these brings up a cyclable list of various features, and is where you can call up different saved MCACC presets, activate the Sound Retriever Function, select Standing Wave and Phase control, etc. One problem is that you'll be reaching for the manual to find out what the various options do, and many that are listed in Pioneer's literature disappear depending on source/mode.

There's a lot less going on in the Video menu, but don't ignore it. Here, the amp offers in-built 4K upscaling, which is set to be automatically employed. I'd suggest experimenting with is – I found switching the 'Scaling' feature to 'Pure' rather than 'Auto' resulted in a more natural image via my Samsung 4K display, with the Pioneer imparting unwanted pixel information around edges, particularly noticeable (albeit from close quarters) during shots of green-shirted SEALs standing against clear blue skies.

Conjuring an AV conundrum

As a low-cost AV receiver, the VSX-930 gets a lot of things right. Dolby Atmos support is welcome, and this seven-channel design makes setup in that regard simple – just wire up your speakers and the receiver makes the magic happen. And there is magic here in the way it handles multichannel mixes with pin-sharp precision. But there are flies in the AV ointment, too.

One is that slightly niggly user experience, another is a lack of innate sparkle to the sonics. The biggest, however, is the VSX-930's ignorance of DTS:X. How big a deal-breaker that will be remains to be seen, but it certainly limits this amp's appeal ■

ON THE MENU



→ The onscreen menus are a little unresponsive, and hardly the most exciting environment to hang about in

SPECIFICATIONS

DOLBY TRUEHD: Yes. Plus Dolby Atmos, Dolby Surround, Dolby Digital Plus

DTS-HD MASTER AUDIO: Yes. Plus DTS-ES, DTS Neo:6

THX: No

MULTICHANNEL INPUT: No

MULTICHANNEL PRE-AMP OUTPUT: No

CLAIMED POWER OUTPUT: 7 x 105W (into 8 ohms)

MULTIROOM: Yes. Zones 2 & 3

HDMI: 7 x inputs; 2 x outputs

COMPONENT VIDEO: 1 x input

AV INPUTS: 2 x composite; 2 x digital audio (1 x optical, 1 x coaxial)

VIDEO UPSCALING: Yes. To 4K

DIMENSIONS: 435(w) x 363(d) x 168(h)mm

WEIGHT: 9.8kg

ALSO FEATURING: Ethernet; built-in dual-band Wi-Fi; onboard Bluetooth; MCACC PRO calibration (setup mic included); DLNA and USB audio playback (includes 192kHz/24-bit); compatible with Start-up Navi and iControlAV5 apps; Advanced Sound Retriever compressed music enhancer; HDCP 2.2 support; 4K/60Hz passthrough (4:4:4); twin subwoofer outputs; Spotify Connect; vTuner; Apple Airplay; HTC Connect

HCC VERDICT



Pioneer VSX-930

→ £500 approx → www.pioneer.eu/uk

→ Tel: 0208 836 3524

HIGHS: Decent styling; forward-thinking HDMI connectivity; efficient auto calibration; Dolby Atmos; precise multichannel sonics

LOWS: Tardy user interface; not DTS:X-ready; clinical delivery

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★

Once again **Mark Craven** enjoys the wireless multichannel flexibility of Philips' flagship soundbar

Back to the 5.1 future

TWO YEARS AGO Philips turned some heads with the launch of the Fidelio HTL9100 soundbar, which featured removable, battery-powered and wireless side speakers that meant it could also function in a 5.1 mode. And it's now returned to the concept, promising feature tweaks that improve usability.

There's an awful lot about the new Fidelio B5 that is the same as the HTL9100, however. The price tag remains at £600, which is upper midrange if not premium in the soundbar world, and the design is identical. The subwoofer is the same vertical-standing 200mm-wide monolith; the main unit showcases the same 'airfoil' curved design to reduce internal standing waves, and the same centralised silver strip. I liked the look of the HTL9100, though, so this continuity is no bad thing.

The 'bar arrives with its two additional side speakers unconnected. Attaching them to the main unit is a simple matter of pushing them into the corresponding slots.

The B5's driver complement has been beefed up (slightly) over the HTL9100. Each side speaker uses a single 3in full-range driver (previously 2.5in), joining a pair of 3in midbass units (ditto) and a pair of 1in tweeters on the main bar. The subwoofer retains the 6.5in woofer on its undercarriage.

Amplification is rated at a maximum 210W in total for the whole shebang. Connectivity includes twin HDMI inputs, an ARC output, and analogue and digital audio ports.

Choose your audio poison

You can run the B5 as a straight soundbar/sub combi – and indeed Philips suggests this is what it expects for TV and music use, switching to 5.1 for movies and games. However, with Dolby Pro-logic onboard ready to transmogrify any source into multichannel, you could use it with its side speakers at the sides of your room all the time, as long as you remember to reattach them to the main unit so they can recharge their batteries. LEDs on each alert you to when power is under 30 per cent charge (red), and under 10 per cent (flashing red).

Completing the wireless ethos of the B5 is the subwoofer, which pairs to the soundbar without need of a cable.

The B5 exhibits broadly the same performance traits as its forebear and is a strong all-round audio performer, albeit with a somewhat dry (rather than smooth) delivery. The rear-ported subwoofer sensibly opts for a light-footed, tight delivery in favour of striving for ultimate depth and scale, as this usually results in booming, unsubtle rumbling in affordable bass boxes. Its sound is well blended with the drivers of the soundbar (it reaches up to 150Hz), and works well adding subtle low-end heft to TV material in addition to backing up the thudding footsteps

of the T-Rex in *Jurassic Park* (Blu-ray) or capturing the driving rhythm section of AC/DC's *Thunderstruck* (CD).

Unhook the rear speakers and the B5 automatically switches to 5.1 mode, either matrixed or native Dolby Digital/DTS, depending on source (there's no lossless audio provision here). And, again, the battery-powered side speakers draw a smile. They're small and light enough to be placed on any available surface, and the 3in driver provides a level of noticeable bass alongside clear high-frequencies. The Gallimimus stampede from *Jurassic Park* becomes a real aural treat, with the dinosaurs running panicked through my viewing room. Above all, it's cinematic.

The handset offers three audio presets – Music, Movie and Voice. Music, when the speakers are detached, creates an all-channel stereo effect that will be good for parties. Voice does lift dialogue clarity a touch, and may find use with regular TV fare. Select it with the speakers detached, though, and you'll find dialogue booming from the surrounds.



The side enclosures can double up as portable Bluetooth speakers!

And what of the new features? The least exciting is the addition of NFC one-touch communication. There must be smartphone owners out there making use of this tactile connection protocol, but I'm not one of them.

Much more useful is the new ability to stream audio via Bluetooth to the individual side speakers, as well as the main bar. This, in effect, gives you a pair of battery-powered Bluetooth speakers for nothing. And, yes, separate devices can sync to the Left and Right speakers at the same time. Neat.

Setup has also been improved via a new Spatial Calibration feature, which works to optimise the multichannel soundfield when the side speakers are in detached mode – Philips appreciates that not everyone will place them in the ideal location. The calibration is achieved via test tones emitted

from the speakers. Meanwhile, a new Close To Me mode mutes the main 'bar but leaves the detached side speakers on. The idea is that you can listen to these from your seat without bothering other people in the room. I can see this working for music, but not when the TV is still flickering away. And the sub's still active...

Clever competitor

The multi-functionality of the B5 is a clever idea that I'm surprised other brands haven't imitated, and when added to the bar's likeable sonic traits and extra-curricular talents, it makes it an essential consideration. It's an innovative option when much of the competition is playing it straight and safe. I wouldn't mind if Philips came back next year with another revamp – perhaps with upfiring drivers for Atmos audio? Go on, surprise us ■

SPECIFICATIONS

DRIVE UNITS: 2 x 3in midbass drivers; 2 x 3in full-range drivers; 2 x 1in tweeters

AMPLIFICATION: 210W (90W subwoofer)

CONNECTIONS: 2 x HDMI inputs (v1.4); HDMI ARC-compatible output; optical digital audio input; coaxial digital audio input; 3.5mm jack; stereo analogue input; USB (service only)

DOLBY TRUEHD/DTS-HD MA: No

SEPARATE SUB: Yes

REMOTE CONTROL: Yes

DIMENSIONS (MAIN UNIT): 1,035(w) x 156(h) x 70(d)mm

WEIGHT (MAIN UNIT): 4.2kg

DIMENSIONS (SUBWOOFER): 200(w) x 510(h) x 200(d)mm

WEIGHT (SUBWOOFER): 5kg

FEATURES: Detachable left/right rear speakers with chargeable battery and wireless connection; wireless subwoofer; Dolby Digital; Dolby Pro-Logic II; DTS; wall-mountable sound bar; bass/treble adjust; Spatial Calibration; Bluetooth (NFC, apt-X); Close To Me mode; individual Bluetooth connection to side speakers

AV INFO

PRODUCT:
Soundbar with unique multichannel skills

POSITIONING:
Philips' current flagship

PEERS:
Sonos Playbar; Samsung HW-H750

HCC VERDICT

Philips Fidelio B5

→ £600 approx → www.philips.co.uk

→ Tel: 0207 949 0241

HIGHS: Dual soundbar/5.1 functionality; stylish design; good connectivity; even-handed performance with nice bass integration

LOWS: Hybrid design makes it quite expensive; high frequencies are a little harsh

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★



52 LG 65UF850V → £2,500 approx



The UF850V uses a 4K IPS panel



HOME CINEMA CHOICE AUGUST 2015

AV INFO

PRODUCT:
65in 4K LED TV

POSITIONING:
Upper-tier 2160p screen, below the flagship UF950V and OLED models

PEERS:
Panasonic TX-65CX802B;
Samsung UE65JU6500

4K resolution is just the start of this 65-incher's bigscreen appeal, says **Steve May**

LG's colour-rich crowdpleaser

4K/ULTRA HD TVS are going mainstream. With up to a million 2160p sets predicted to be sold in the UK alone this year, the technology is fast replacing Full HD. In all likelihood, if you buy super-sized from this point in you're going to end up with UHD, whether you want it or not. This is, of course, a very good thing.

LG's 65in UF850V is a prime example of just how much top telly tech you can get for your cash today. Typically selling for £2,500, this slickly-designed bigscreen boasts well-meaning HDMI connectivity, has 4K Netflix onboard, and is smarter than Stephen Fry in his Sunday best.

The set may only offer three HDMI inputs, but two are capable of 4K/60Hz and support HDCP 2.2 copy protection. The latter is fast becoming the most important small print on any 4K TV spec page. HDCP 2.2 means the set won't throw up its hands in horror when you eventually connect a 4K Blu-ray player, or UHD set-top box.

Wi-Fi is dual-band 2.4GHz and 5GHz. Additional wireless fun can be had with Intel WiDi compatible devices and any mobile device that offers Miracast screen mirroring.

The set also features the second iteration of LG's excellent WebOS Smart TV platform. Navigation is faster and there are some tweaks to functionality – you can group your favourite channels together and use a Quick Access menu to get around – but basic usability remains unchanged. You can still treat online content like any other channel, hoping between services without having to exit and then relaunch apps.

And there's plenty of streaming content to enjoy. Netflix has been steadily expanding its UHD offerings, and now boasts a range of shows from *Video Game High School*, *Bloodline* and *Grace & Frankie* to blockbusters *House of Cards*, *Marco Polo*, *Daredevil*, *Better Call Saul* and *Breaking Bad*. You'll need a fast fibre connection and premium subscription to enjoy

it, though. Other streaming services include BBC iPlayer, Amazon Prime, YouTube, Wuaki. TV, Blinkbox, Eurosport Player and Now TV, while the LG content store offers premium VoD content, including on-demand movies and games. Audio providers include Deezer, Napster, vTuner and Spotify (but not Spotify Connect, which would have been preferable).

File playback support is solid too. The UF850V can handle AVI, WMA, MKV, MOV and MP4 video files, as well as FLAC, AAC, M4A, MP3 and WMA audio, from USB or across a network.

LG has even revamped its Bluetooth Magic Remote. It now has numerical keys so there's no need to juggle two wands, plus an integrated microphone for voice commands. Voice recognition here is surprisingly good. The screen can recognise channel commands, as well as basic menu calls such as TV guide and input selection. I quickly decided that speech was actually the simplest way to access things like Settings – and that's a first!

Going native

UHD picture detail is similarly impressive. You may feel that 65in is too much glass for your humble abode, but to really appreciate 4K it's actually a great size. You don't need a massive room, and you'll want to see every detail.

The UF850V is at its best with native 4K content, where colour performance and detail presentation are extremely good. There's a tactile level of detail evident in *Daredevil* (Netflix 4K). Fabrics have weave and density, skin tones are painfully bruised and realistic. It's as if this TV grants viewers an iota of Matt >

The tweaked Magic Remote offers improved functionality





The bezel's angled lip directs audio from the onboard speakers

Murdoch's super sense, and it does a fantastic job painting life into the shadows of Hell's Kitchen. The image is gritty and compelling.

While I don't think this screen has the best upscaling in its class, there's no doubt that it puts its pixels onscreen. *The Expendables 3* (Blu-ray) opens with a big close up of Sylvester Stallone's grizzled face. Grimy and bathed blue and red, it looks positively

'The 65UF850V is a slickly-designed and super-Smart bigscreen that offers great value for money'

hyper-realistic. There's no evidence of pixel structure, even when viewed immodestly close. Bright white highlights in Stallone's eyes ping from the screen.

This IPS panel doesn't quite deliver a deep black, but in a room with ambient light it subjectively looks dynamic enough. Move to a coal cellar, though, and black scenes are more fifty shades of grey. For the best results keep the Black Level setting to Low, rather than High, and experiment with the brightness controls.

Black level issues aside, when Ethan Hawke enters dilapidated 604 First Avenue in search of Beverly the bartender in the pilot for mystery TV show *Wayward Pines*, details in the shadowed wallpaper are clearly delineated, despite the spooky gloom.

Resist the temptation to use the Cinema mode for your filmic thrills. This casts everything in a rather nasty mustard light. The Standard mode is far closer to what you might expect to see in a digital theatre. Here, the set's Wide Colour Gamut panel does

a mesmerising job with the vibrant hues of *Shogun Assassin* (Film 4 HD). Vivid crimson gore and period detail are richly drawn. The LG is adept at deep red, traditionally difficult for LED/LCD. Its edge lighting is not entirely even, although with most content this isn't immediately apparent.

When the TV does falter it's with motion handling. Bizarrely, not a single TruMotion preset offers genuinely clear artifact-free images. While you can turn LG's picture processor off, this impacts subjective clarity, although to be fair you'll probably notice the deficit more with sports than movies.

Both TruMotion Smooth and Clear modes retain detail, but introduce unwanted effects around moving objects. The Clear Plus mode offers excellent moving

detail but with a noticeable penalty in brightness. The best option is the customisable User mode, which has variable de-judder and de-blur. Set de-judder around 5-7, and de-blur at 0, and motion artefacts are reduced to almost zero. The result is a decent compromise for varying content.

Although IPS panel vendors make much of the wide angle viewing, this set isn't so impressive in that regard. I found I still lost considerable colour and contrast when viewing from the sidelines.

Seeing double

The 65UF850V offers 3D of the passive FPR (Film-type Patterned Retarder) variety. Said tech is a great option for UHD because there's none of the overt resolution loss which spoils the show on Full HD screens. Unfortunately its implementation here is challenged. Unless you're viewing square on, you'll suffer heavy double imaging. Play a 3D Blu-ray and half the menu screen becomes unreadable unless you align your head with surgical precision. The acceptable viewing angle is really limited.

Sound quality, conversely, is surprisingly good. Designed by Harmon/Kardon, clever engineering creates a sense of forward-firing audio. What looks like a metal trim on the bottom of the screen is actually a sonic reflector for the angled drivers inside. There's not a lot of volume on tap, but this artful deception still works rather well.

Overall the 65UF850V is a good-looking 4K TV that offers great value for money. The specification is solid, the user interface is excellent and image quality above average. Dense 2160p pictures with verdant colour and high brightness make this set a treat to watch. Balance this with a lack of deep black, dodgy 3D and fussy motion, and it still comes out ahead ■

ON THE MENU



→ LG's WebOS interface has been given a light revamp for its second year, but still majors on colourful icons and zippy navigation

SPECIFICATIONS

3D: Yes. Passive

4K: Yes. 3,840 x 2,160

TUNER: Yes. Freeview HD and DVB-S satellite
CONNECTIONS: 3 x HDMI inputs (two v2.0 with HDCP 2.2); 3 x USB; Scart; component video; stereo phono; digital optical audio, Ethernet;

CI slot

SOUND: 2 x 10W

BRIGHTNESS (CLAIMED): N/A

CONTRAST RATIO (CLAIMED): N/A

DIMENSIONS (OFF STAND): 1,454 (w) x 850.5 (h) x 52 (d) mm

WEIGHT (OFF STAND): 31.3kg

FEATURES: Built-in dual-band Wi-Fi; optional recording to external USB hard drive; multimedia file playback from USB or networked devices; Miracast/WiDi compatible; Bluetooth remote control with microphone; Tru Ultra HD Engine with TruMotion control

HCC VERDICT



LG 65UF850V

→ £2,500 approx → www.lg.com/uk

→ Tel: 0344 847 5454

HIGHS: Sleek minimalist design; excellent Smart TV portal; crisp image quality with lush colour reproduction

LOWS: 3D viewing angle is limited; screen doesn't quite manage deep blacks; upscaling good but not exceptional

Performance ★★★★★

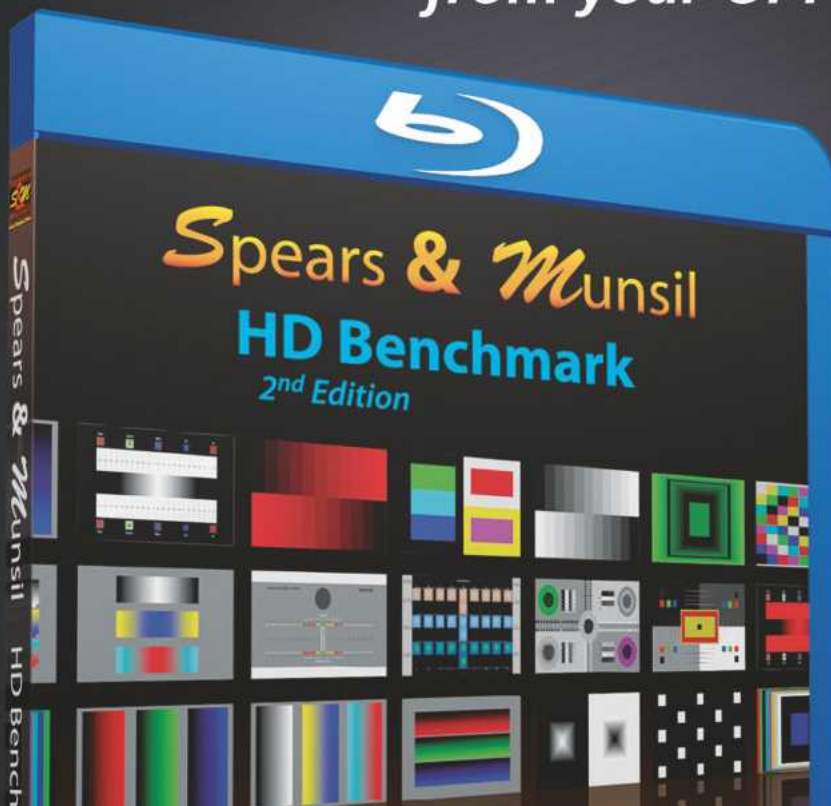
Design ★★★★★

Features ★★★★★

Overall ★★★★★

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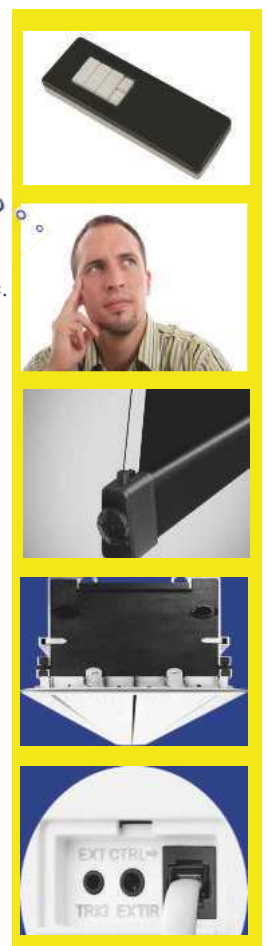
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Adrian Justins auditions a soundbar and subwoofer duo from Arcam. Is the UK brand's first foray into the market a big hit?

New kid on the block



The central display provides access to the setup menus

ARCAM HAS BEEN synonymous with quality home cinema for two decades, so it's no surprise that its debut soundbar product – the Solo Bar – is a premium model sporting an £800 price tag. Add in the Solo Sub and the ticket rises to £1,300. Bargain-basement AV, this isn't.

Now, probably no one other than me is going to be troubled by the notion of two products named 'Solo' that work best together, and they are so called because they are additions to Arcam's Solo range of hardware, which also includes the Muso loudspeaker and – soon – the new Solo Movie amp/disc player unit.

Rugged and ready

The Solo Bar and Sub take on the high-end likes of B&W's Panorama 2, Monitor Audio's ASB-2 and Bose's Cinemate 1SR, amongst others, and offer the build quality that prospective buyers will expect. Boasting a rigid construction and totting premium components including Wolfson anti-jitter circuitry featured in Arcam's AVR range, the Solo Bar weighs in at over 6kg and is more than a metre wide. It looks like a serious slab of AV gear, and ticks the enthusiast-level boxes thanks to features such as 4K HDMI passthrough and built-in Dolby TrueHD and DTS-HD Master Audio decoding.

The bar uses six drive units, arranged linearly in two sets of three (two 4in midbass and a tweeter), either side of the central display. The tweeters are angled slightly outwards to aid a wide dispersion.

Power output is a claimed 100W (of 'real power' says Arcam) with an additional 300W at the disposal of the Solo Sub, which has a downward-firing 10in woofer.

Connectivity is almost impeccable, comprising an impressive four CEC-enabled 4K passthrough HDMI (capable of shunting 60Hz material), plus an HDMI output with ARC, and coaxial, optical and 3.5mm line inputs. I say almost impeccable because there is no provision for music via USB, although you can stream to the Bar using apt-X Bluetooth and in the opposite direction to a pair of Bluetooth headphones. The latter – a feature also found on LG's range of soundbars – is extremely useful for late-night movie sessions.

Like the soundbar, the subwoofer is an impressively built beast (fashioned from braced MDF) and offers versatile connectivity

with stereo phonos, LFE and wireless options. It can be tweaked in terms of crossover, volume, phase and crossover Q, which alters the slope of the trace beyond the cutoff frequency, in dB/octave. Here, Arcam recommends trying a setting of 1.1.

The Bar's remote control doesn't have the premium quality feel that I expected but it's decently laid out and easy enough to use. You can download a Solo app (iOS/Android) that transmits over Bluetooth and replicates the layout of the physical handset. Good for use in low light rather than the non-backlit remote.

Operation is aided by a good-sized display window in the centre of the Bar but there's no display routed to your TV. The menu offers useful options to clip the subwoofer output by

'A serious slab of AV gear... and HDMI hookup and lossless decoding tick the enthusiast-level boxes'

up to 12dB, allow IR signals to be throughput (vital considering the height of the Bar may obscure your TV's receiver) and turn on/off HDMI CEC. I found using CEC the best option for minimising remote control use.

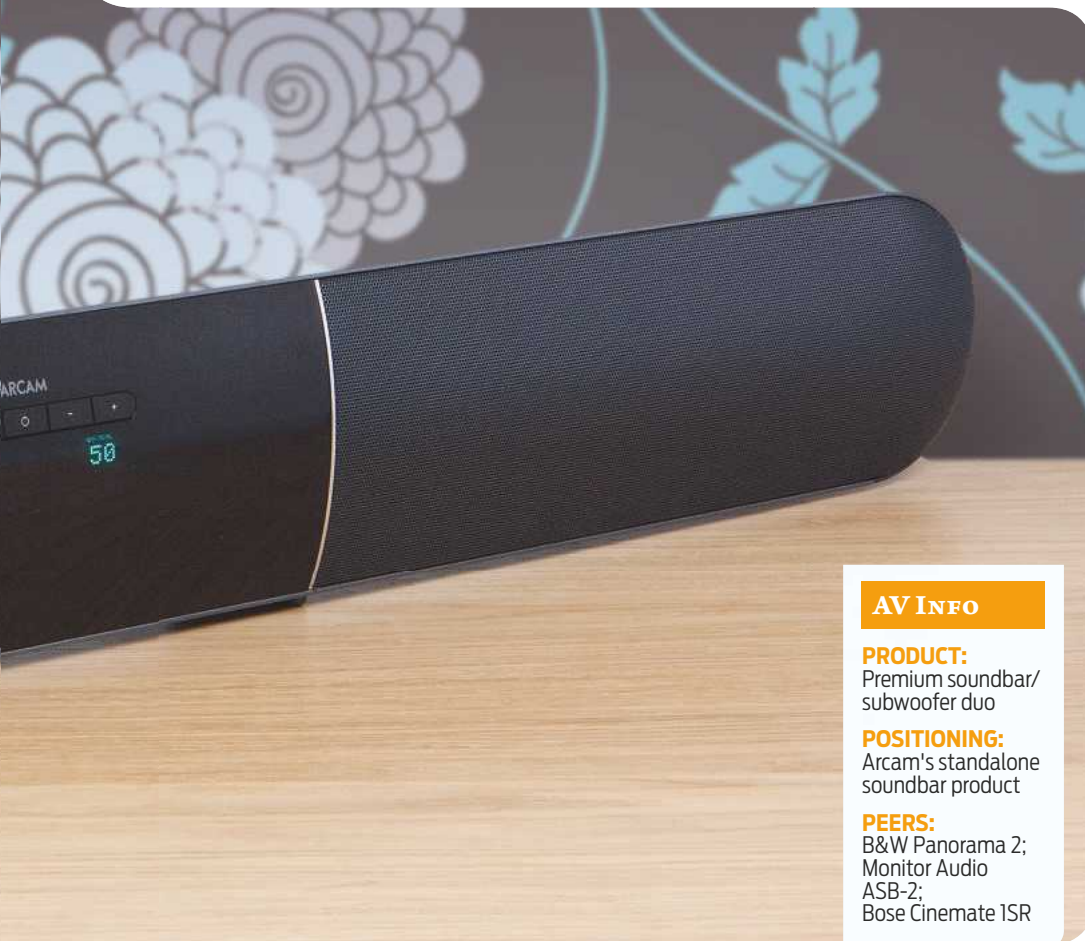
There are three playback modes: stereo, concert and movie, with the latter two implementing some 'mild' DSP to alter the EQ and imaging ('the coefficients are set to avoid the usual headache-inducing sound many bars deliver...' says the brand). Arcam has got this spot on: certainly the movie mode is more effective at delivering individual effects and separating frequencies. Stereo is the default mode, and I found it best used for music as well as daytime TV viewing.

Setting up is straightforward and overall the Bar is simple to get to grips with – up to a point. You can use the supplied mic to measure your room's acoustics and set a filter, stored in the EQ memory. But Arcam vaguely recommends only using this with certain material and experimenting would be a lot easier if the EQ on/off control were a button on the remote. The Bar also offers an Auto Loudness Control (ALC) function, which is actually given its own handset button.

Setting the scene

I found that for TV material, getting the best sound out of this Solo duo became a process of trying combinations of EQ on/off and ALC on/off, because the latter in particular did have quite an impact on sound.

With cricket on Sky HD, with ALC on and EQ off, the background murmur of the crowd was too much, but commentators' voices were richer and more agreeable than with ALC off. >



AV INFO

PRODUCT:
Premium soundbar/
subwoofer duo

POSITIONING:
Arcam's standalone
soundbar product

PEERS:
B&W Panorama 2;
Monitor Audio
ASB-2;
Bose Cinemate 1SR



The sub uses a down-firing 10in driver

I switched EQ on, and got a better balance between vocals and background ambience, but the voices were robbed of some of their weight. Drama *Penny Dreadful* on Sky Atlantic threw up some niggles, too. With both room

'I got a real sense of the directionality in *Avatar*'s BD mix, with the Bar conveying width and scale'

EQ and ALC in play, background noises were domineering, but with ALC off dialogue was thin and harsh. Often I found myself fiddling rather than watching the TV. Prepare for some experimentation.

Where it matters most

Happily, things are a lot less complex and a lot more convincing with the Solo partnership when it comes to watching Blu-rays. It became clear that in my room both EQ and ALC were best avoided, and the Arcam's pure handling of the DTS-HD Master Audio soundtrack of *Avatar* was simply terrific, with a dynamic delivery that was utterly engaging.

During the attack on the humongous tree, the sounds of blades of grass being blown by helicopter downdraft were wonderfully distinct through the Bar's driver six-pack, as was a quiet tap on a computer screen. And when the mortar shells whooshed and bounced, and as the horse hooves

scattered, I got a real sense of the directionality inherent in the mix, with the Solo Bar working well at conveying both width and scale. The impactful sounds of raging fires and larger missiles coming in and exploding were delivered with muscle and control. This system got the most out of the multi-faceted soundtrack thanks to its skilful, even-handed approach.

The subwoofer blends seamlessly with the soundbar, and is worth investing in. For example, when the tube train crashes through the tunnel in *Skyfall*, the explosion hits hard and low – and as the debris thunders down around Mr Bond the Solo double act deftly delivers it all with aplomb. Against this background of effects the dialogue channel remains strong and distinct. You could buy the Bar on its own and ignore the woofer, but you'll miss out on its low-end charms.

Musically the Solo is also a highly accomplished performer (EQ off). Streamed via Bluetooth from my MacBook Air, a whole slew of hi-res and standard-res downloads sounded dynamic, lustrous and beautifully balanced. The punch of the drums during Michael Jackson's *Billie Jean* was more devastating than a series of jabs from Carl Froch, while the trumpets during the *Raiders of the Lost Ark* soundtrack have body and verve. I did experience the odd Bluetooth drop-out, however.

Overall, this Solo duo is a fussy bunny with low-quality (albeit Dolby Digital) broadcast sources but totally excels with Blu-ray soundtracks and music, and has impressive build quality and connectivity ■



SPECIFICATIONS

DRIVE UNITS: 4 x 4in cone woofers; 2 x 1in cone tweeters

AMPLIFICATION: 100W

CONNECTIONS: 4 x HDMI inputs; 1 x HDMI output (ARC); 3.5mm audio input; USB (service); microphone; subwoofer output; coaxial digital audio; optical digital audio

DOLBY TRUEHD/DTS-HD MA: Yes

SEPARATE SUB: Yes. 300W, 10in driver

REMOTE CONTROL: Yes

DIMENSIONS: 1,100(w) x 130(h) x 110(d)mm

WEIGHT: 9kg

FEATURES: Stereo, Movie, Concert modes; wall-mounting; wireless sub; assisted setup using microphone; apt-X Bluetooth; iOS/Android app control; HDMI CEC on/off; HDMI ARC; IR repeater; Automatic Loudness Control; EQ on/off; adjustable display brightness

HCC VERDICT



Arcam Solo Bar/Sub

→ £1,300 approx → www.arcam.co.uk

→ Tel: 01223 203200

HIGHS: Impeccable build quality; dynamic, highly-detailed Blu-ray audio; smooth, muscular bass; great connectivity

LOWS: Challenging to get best sound from broadcast sources; some Bluetooth drop-outs; not cheap

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★

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Loewe's 4K phoenix

After a period stuck in buy-out hell, can the German brand's first ever 4K TV persuade **John Archer** that it hasn't lost any of its premium edge?

AV INFO

PRODUCT:
4K TV with a premium design and built-in hard disk recorder

POSITION:
More or less in the centre of Loewe's latest TV range

PEERS:
Samsung UE65JS9000; Sony 65X90C

THERE HAVE BEEN moments over the past couple of years where things have looked decidedly dodgy for German brand Loewe. It's always claimed, though, that it knew where it was going – it's just taken longer than expected to get there.

Now, Loewe's finally ready to emerge – or rather, explode – back into the AV sunlight by becoming the first brand to only sell 4K/UHD TVs. Yep, every size of every TV in Loewe's new four-series-strong TV range features a 3,840 x 2,160 resolution screen. For a brand with a luxury ethos, it's a sensible step.

Feast of features

With the mid-range 55in Loewe Connect 55 on my test bench today, the 4K resolution is just one of its attractions. For starters, while Loewe has slightly streamlined its customisation options from past generations, the Connect 55 still comes in three different core colour combinations, lets you change

the colours of elements of its design, and can fit onto a variety of table-top, floor, wall and furniture mounts. It looks equally gorgeous no matter what design blend you choose, and it's also superbly built by modern standards.

One notable part of its design is the front-facing speaker bar running along the bottom edge, as this promises a more powerful, direct sound than the usual down-firing systems.

The Connect 55 further stands out from the TV crowd with its 1TB built-in hard disk recording system, which can store hundreds of hours of programming direct from the set's Freeview HD tuner. You can also remotely set recordings via the Loewe Smart Assist app.

One obvious chink in the Connect 55's feature armour is its Smart TV system, which doesn't support any of the key UK catch-up content services, nor Netflix or Amazon. The lack of support for the latter means there's no easy way to enjoy 4K video on a Loewe

Right: Loewe still pays attention to its flatscreen styling

TV until compatible Blu-ray players or broadcast platforms (such as BT's Ultra HD Sport channel) arrive. At least the TV supports HDCP 2.2 and the HEVC codec, so is futureproofed in that regard.

Inputs include four HDMI, two USB ports and built-in Wi-Fi.

A mark of excellence

In most ways that matter, the Connect 55 is an excellent picture performer. Its colour rendition, for instance, appears pretty much as good as it could be on a TV that doesn't

'The Loewe Connect's video processing is truly outstanding and its built-in hard disk recorder is a boon'

support High Dynamic Range (HDR), with rich saturations and beautifully subtle blends and details. This is especially true with 4K content, helping my 4K World Cup footage look gloriously life-like and immersive. Only the best 4K TVs have enough colour subtlety to match the eight million pixels in their screens, and by that measure the Connect 55 is clearly one of the best.

The precision of its Ultra HD pictures can be seen, too, in the wide shot across the futuristic cityscape from Quaid's balcony in the *Total Recall* remake (4K HDD material), letting you pick out incredible levels of detailing and delivering that sense of extreme image depth that's a trademark of the finest UHD experiences.

The Connect 55's sharpness is underlined by superlative motion handling. Everything from that 4K World Cup coverage through to the battlefield kinetics of *Edge Of Tomorrow* (Blu-ray) is rendered with a combination of judder-free smoothness and an absence of jarring resolution loss. And Loewe's processing never feels overbearing or distracting, either.

UHD upscaling is effective. The results aren't as sharp, perhaps, as those of Samsung

and Sony's latest TVs, but again, despite the amounts of processing involved, ramped up Full HD sources look admirably natural.

Actually, the Connect 55's processing works brilliantly on almost every level. So much so that I'd argue getting the best from Loewe's new set is no more complicated than just making sure its Image+ processing is switched on. This handles a huge range of picture features, including panel backlighting, motion processing, noise reduction, colour handling and upscaling of HD and standard-def material. Despite the diversity of its duties, Image+ delivers mostly superb results.

In fact, it served up contrast results during dark room viewing (with its light sensor element active) that were better than anything I could achieve via my own tweaks – the first time that's ever happened!

Accompanying the Connect's mostly great pictures is some unusually powerful, well-rounded audio. The speakers can snarl a bit under extreme duress, such as during the city destruction sequences in '90s sci-fi *Independence Day*, but aside from these rare moments you'll love the clarity and dynamic range on offer. And you can add one of Loewe's own subwoofers or use its integrated 5.1 decoder to hook up an external surround sound system (of any brand) to outdo the built-in 80W stereo speakers.

Black level limitation

The Connect 55 doesn't quite earn an unreserved recommendation, though. During dark scenes you can't help but notice that the glossy screen can be distractingly reflective unless your room is itself blacked out. Also, while the Connect 55's black levels are good, really dark areas reveal slightly more greyness than you get with star black level performers, as well as traces of backlight clouding that no amount of experimenting with the TV's settings completely removes. By the time you've taken enough light out of pictures to minimise the clouding, moreover, pictures have lost quite a lot of luminance and a little shadow detail.

Another point: it's a shame given its premium price that Loewe doesn't provide any free 3D glasses with its new 4K TV – a fact which prevented me from testing its 3D performance. It's also tempting to wish that Loewe had sneaked HDR capability into this screen considering its price, although this is perhaps unfair given the Connect 55's uniquely customisable, luxurious design, onboard digital recorder, and the fact that it probably would have cost substantially more under Loewe's previous regime.

Nonetheless, while its video processing is truly outstanding and its built-in video recorder is a boon, its slight dark scene foibles and lack of (especially 4K) video streaming support are hard for serious AV fans to ignore ■

ON THE MENU



→ Loewe's menu system lags behind most of the competition in terms of visual flair. It is, however, well-designed when it comes to accessing settings and features, and offers plenty of customisation

SPECIFICATIONS

3D: Yes. Active (no glasses supplied)
4K: Yes. 3,840 x 2,160

TUNER: Yes. Freeview HD, satellite

CONNECTIONS: 4 x HDMI (v2.0); 2 x USB; Ethernet; RF input; satellite input (not Freesat); built-in Wi-Fi; CI slot

SOUND: 80W stereo system, plus 5.1-decoding included

BRIGHTNESS (CLAIMED): N/A

CONTRAST RATIO (CLAIMED): N/A

DIMENSIONS (OFF STAND): 1,229(w) x 751(h) x 68(d)mm

WEIGHT (OFF STAND): 27.8kg

FEATURES: USB multimedia playback; DLNA networking; Image+ video processing engine; built-in 1TB hard disk recorder; twin tuners; can stream from one tuner to Smart device while watching another on the TV; remote recording via Smart Assist app;

HCC VERDICT



Loewe Connect 55

→ From £2,800 approx → www.loewe-uk.com

HIGHS: Exceptional picture processing; premium and customisable design; good sound quality; built-in HDD recorder

LOWS: No support for key video streaming services; reflective screen; slight backlight clouding

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★

Each rear-ported speaker uses a 1in tweeter and 4.5in midbass driver



Something of a departure from the kings of cubic capacity, the SVS Prime Satellites make a big impression on **Ed Selley**

Prime entertainment

WHEN YOU THINK of SVS, a number of words spring to mind but 'compact' isn't often one of them. The last SVS kit I reviewed, the PB1000 sub, would have made a decent coffee table as well as an excellent woofer. The company has a reputation for serious AV gear but little of it has been anything other than big.

This makes the system you see here something of a radical departure from the normal way that company does its business. The Prime is a complete range of speakers

including floorstanders, standmounts and centre speakers, but these – the Prime Satellite – are the smallest member of the family.

The Prime Satellite is a compact, two-way bookshelf speaker that SVS will supply as a quintet with its SB1000 subwoofer to make the Prime 5.1 system. The speaker is impressively compact, standing a whisker over 22 centimetres tall. Into this fairly tight space, SVS has managed to squeeze a 1in aluminium tweeter and a 4.5in polypropylene midbass driver.

Unusually for a satellite speaker, SVS has also rear-ported the cabinet. This means that for a fairly small box, the Prime manages to



offer a claimed low-end roll off of 69Hz, which allows the Satellite to run a crossover that takes it most of the way to the use of the subwoofer being genuinely omnidirectional. It does also mean that although each satellite comes with a keyhole-style mount on its rear face, this might not be the happiest set of speakers to wall-mount.

The claimed sensitivity of 85dB is also not especially high but in reality is not appreciably less sensitive than rivals at this price point.

While there is a dedicated centre speaker in the Prime range, it is not used in this £950 bundle. But while centre duties aren't being handled by a speaker setup specifically for the task, equally there should be no issues in terms of handover from one channel to another.

12in magic act

The SB1000 sub has been reviewed individually before (*HCC #222*). It is the smallest of the SVS models and is available separately for around £450. Unlike the Satellite, 'small' does need to be used carefully here, as the SB1000 features a 12in driver motivated by a Sledge DSP 300W amplifier. This is encased in a commendably

neat-looking cubed cabinet that is only marginally wider than the driver. The connection set is up to scratch, including stereo and LFE inputs as well as a high-level input. And, in addition to the default volume and crossover controls, the SB1000 also has a continuously adjustable phase control, which can be useful depending on where you place the sub.

Installation of the system overall should not be too hard, though. Accepting that wall-mounting the speakers might not be completely effective, the cabinets are solid and SVS supplies small rubber feet that gives them extra traction when placed on a flat surface. With their small footprint, they should be easy enough to accommodate. The SB1000 is, as noted, larger than many rivals but the sealed design and impressively inert cabinet is amenable to being tucked out of the way without inviting the room to play along as well.

The fit and finish of the system is good. Our review set is dressed in gloss black, which looks much smarter than the black ash option, but raises the price. Opt for ash and this set comes in at £850 – a good

AV INFO

PRODUCT: 5.1 sub/sat system

POSITIONING: Entry-level models in the SVS Prime range

PEERS: DALI Zensor 5.1; Wharfedale 220 HCP

potential saving if you'd rather spend your money on Blu-rays.

The lacquer has no signs of imperfections or gaps and it encases cabinets that feel pleasantly robust.

Style-wise, the Prime Satellite 5.1 is quite masculine-looking, although little touches like the chamfered front edges on the speakers and curved corners on the subwoofer make an attempt at softening their impact. Keep the grilles on and they won't dominate a room.

Big ideas

In terms of sonic performance, the SVS array stops being small the moment that you put some audio through it. The decision by SVS to squeeze a 4.5in driver into the Satellite, and



Each Satellite can be wall-mounted if needed

the corresponding boost to the low-frequency response, means that each speaker is able to generate meaningful heft in its own right. When you throw in a subwoofer that is able to produce meaningful output from 20Hz and up, you have a system that manages to generate a real sense of scale.

It is also extremely entertaining. Colin Firth's stylised demolition of the church toward the end of *Kingsman: The Secret Service* (Blu-ray, see p96) is tremendously powerful and extremely well handled by this

'Despite the size, this is a set that is convincing at filling a room with a full-scale and believable sound'

sub/sat setup. The sense of their being multiple fights taking place all around you is captured impressively well, and the speakers manage to extract a significant amount of fine detail from the lossless mix.

Using an identical enclosure for the centre pays off comparatively well. While there is a sense that dialogue might be fractionally clearer on a dedicated centre speaker, the trade-off is that across the front three speakers the movement from channel to channel is extremely fluid. Being hyper-critical, I'd say that each speaker has a slightly narrow presentation (despite SVS's employment of an FEA-optimised tweeter diffuser) that tends to beam information at you, but this is no more pronounced than most satellite speakers and it reflects well that I began subconsciously considering the Prime to be a full-size model.

Presentation is also tonally spot on. The climatic drum sequence in *Whiplash* (Blu-ray)

sounds absolutely right. There is a real sense of the tremendous energy that the drumkit is releasing and thanks to the hefty output of the SB1000, this energy is felt as much as it is heard – the sub does a sterling job of ensuring that the kickdrum is multiple beats rather than a sort of monotone thud. Up at the top-end, cymbals sizzle with metallic energy and realism. The Prime system manages to capture the sharpness of these high-frequency sounds while remaining impressively civilised for the most part. There's nothing grating about its delivery.

This civility also makes the Prime 5.1 a happy partner for day-to-day TV viewing and the performance in 2.1 mode is also creditably musical, with a sound that doesn't favour one element of the frequency range paying dividends. And, on the end of my Yamaha RX-A3040, they were able to go impressively loud with no signs of strain. Just as importantly for a domestic speaker package, they still sound clear and detailed at lower listening levels.

Aiming for the middle ground

This is a system that fits into a small subsection of 5.1 packs, hovering around or below the £1,000 mark. It is a sub/sat package by name, but perhaps not by nature, as even though the Satellites are commendably small, they are still larger and more imposing than many rivals, while being smaller than most standmounts.

Sitting between the two categories manages to impart the speakers with a great many of the attributes of larger packages (particularly an impressive bass response) and this is a set that is convincing at filling a room with a full-scale and believable sound. Combined with the capable subwoofer, you have a package that performs with real authority. When it comes down to sheer sonic ability, the Primes are still thinking big ■

SPECIFICATIONS

PRIME SATELLITE

DRIVE UNITS: 1 x 1in aluminium tweeter, 1 x 4.5in polypropylene midbass driver
ENCLOSURE: Ported
FREQUENCY RESPONSE: 69Hz-25kHz
SENSITIVITY: 85dB
POWER HANDLING: 150W
DIMENSIONS: 124(w) x 223(h) x 152(d)mm
WEIGHT: 2.94kg

SB1000 (SUBWOOFER)

DRIVE UNITS: 1 x 12in long-throw woofer
ENCLOSURE: Sealed
FREQUENCY RESPONSE: 24Hz-260Hz
ON BOARD POWER: 300W
REMOTE CONTROL: No
DIMENSIONS: 344(w) x 344(h) x 370(d)mm
WEIGHT: 15.42kg
CONNECTIONS: Stereo in/out; LFE in/out; high-level in

HCC VERDICT



SVS Prime 5.1

→ £1,000 approx → www.karma-av.co.uk
 → Tel: 01423 358846

HIGHS: Powerful, cohesive and refined sound; excellent build quality; subwoofer is compact considering driver size

LOWS: Slightly directional in delivery; more conspicuous in size and design than some rivals

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★



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Multimedia marvel

No, it's not a kitchen appliance – **Martin Pipe** meets Acer's micro PC, the Revo One, and discovers that its multi-functional talents soften the blow of its £400 ticket

AV INFO

PRODUCT:

Micro PC designed for living room use

POSITION:

Joined by the Revo L in the brand's media player/PC stable

PEERS:

Dune HD Base 3D; Western Digital WD TV

THE WINDOWS PC was at one time a nondescript beige box in the office, the source of much frustration when the dreaded 'Blue Screen of Death' flashed up on its bulky CRT monitor, invariably just before you were about to save the latest version of whatever it was you were working on. Then the internet happened, and gamers discovered the potential of multimedia-enabled PCs, and what was once office equipment started finding its way into living rooms and dens. Powerful gaming PCs were built into aggressive-looking boxes, while those destined for living rooms and home cinemas were styled after upmarket DVD players. The latter – 'Home Theatre PCs' – could store and organise movies and music and tune into/record digital TV, as well as play discs.

Despite the innovations, domestic PC sales have been impacted by high-end gaming consoles and the increasing uptake of tablets and smartphones. So manufacturers are still

having to adapt to maintain interest. And to this end we have the Revo One RL85, from long-time PC stalwart Acer. Clearly aimed at the sort of customer who'd buy a Mac Mini, this is the cutest PC I've come across – occupying as it does a four-inch square. With its elegant curves and white colour scheme, this high-tech lozenge wouldn't seem out of place in a modern designer kitchen. I don't have one of those, of course, so it had to make do with my living room.

Intel inside...

So the Revo really doesn't look like a PC, but betrays its true nature with its 'Intel Inside' sticker. This refers to the internal Core i3 64-bit processor (a more powerful i5 model is also available at £500).

Then there are all the ports that you won't find on a travel kettle. First and foremost is HDMI, which will shunt the integrated Intel HD Graphics 5500's video – and multichannel

audio – to your display and AVR. You don't get an analogue alternative of the sort fitted to dedicated multimedia players though. A mini-DisplayPort connector (a nod to the Apple world) is also included; you could drive two displays simultaneously, using HDMI adaptors if necessary.

There is also (Gigabit) Ethernet for drawing multimedia from your home network or the internet, Bluetooth, Wi-Fi and four USB ports

'In AV terms, and via the onboard HDMI output, the Revo is just as good as a decent HD disc player'

(two of which are USB 3.0 compliant).

The only analogue output is 3.5mm audio.

On top of the unit are a SD card slot and an array of LEDs that indicate when the network and hard drives are active. 'Drives'? Yes. Incredibly, you can fit up to three (one 500GB as standard) into that tiny body courtesy of a clever mounting-cage arrangement. They're 2.5in SATA types, and Acer's website lists permutations of conventional drives and silent SSDs. A NAS-type RAID mode is available.

There's no optical drive for ripping your CDs, DVDs or Blu-rays. You'll need to use another machine or an external USB drive if you want to get conventional multimedia onto your Revo – remember that three drives could mean an awful lot of content.

Peering through the Windows

The Revo is preinstalled with the Windows 8.1 operating system and a selection of software – including an Acer software suite (with its own multimedia player and DIY cloud storage application) and McAfee. Our sample was equipped with the (currently) maximum possible 8GB of RAM; 4GB is more usual. Memory can be upgraded but the machine needs to be disassembled. You can't buy the Revo for a saving without operating system, which is a pity if you'd like to run Linux.

Specifying Windows does mean that you can choose from a wide variety of software covering many different applications – unlike most dedicated media players.

The Revo is by no means a powerhouse PC

by today's cutting-edge, but it can certainly be used to play games. Controllers can be attached to the USB ports, as well as a keyboard and mouse. Another option, for users of Android or Apple devices, is the free Revo Suite smartphone app. I also had the chance to try Acer's mini wireless keyboard/trackpad/remote, which is supplied as standard with i5 versions. This double-sided handset worked quite well, despite the keys being rather small and the trackpad taking time to get used to.

The remote element worked very well with a key piece of free software – the first to be installed on the Revo. This is Kodi, which will be familiar to many as XBMC. Acer's multimedia player and the one built into Windows are fine, but none can get close to Kodi. Everything's configurable, and it exploits the full advantage of the Revo hardware. You can, for example, tell the software to change display refresh rate so that it matches incoming video. Thanks to this, I was able to display Blu-ray rips in native 24p form – and with TrueHD or DTS-HD Master Audio soundtracks too, thanks to the audio passthrough option. Ripped DVDs played fine, with menus and soundtracks.

In AV terms, and via HDMI, the quality is just as good as a decent disc player – certainly with my Samsung Full HD TV, Onkyo AVR and Rogers speaker array. Playing both 50Hz content (TV and DVD-derived material) and 24p Blu-ray rips, you'd be hard pressed to tell the difference. Plenty of visual detail and image depth are evident. Colours are convincing, there's no unwanted cropping and at no time did artifacts spoil the illusion. And I was surprised by how insignificant motion judder was while viewing 24p Blu-ray material with the Acer player at the Revo's default (60Hz) output – clearly, the Intel graphics chipset is doing a great job.

(Naturally you're advised to view at a native refresh rate if your display can handle it). Sound quality via HDMI is just as impressive, with the Revo yielding the audio streams to my AV receiver with no glitches or lip-sync problems.

Unique option

If you're after a powerful and upgradeable media player, and can forgo any analogue outputs, then definitely consider this uniquely-styled unit. Yes, it's expensive compared to the dedicated player competition, but you're getting PC functionality thrown into the bargain ■

SPECIFICATIONS

HDD: 2TB (review sample; 3 x 2.5in SATA drive bays)

AUDIO FORMAT SUPPORT: Software dependent (up to 7.1/192kHz/24-bit via HDMI)

VIDEO FORMAT SUPPORT: Software dependent (up to 4K possible)

CONNECTIONS: HDMI 1.4; mini-DisplayPort; Gigabit Ethernet; 4 x USB ports (2 x USB 3.0 compliant); 3.5mm audio; SD card slot

DIMENSIONS: 106.5(w) x 155(h) x 106.5(d)mm

WEIGHT: 1kg

FEATURES: Intel 5500 graphics chipset; two of the three HDDs installed in easily replaceable screwless caddies; Acer software suite; McAfee security/anti-virus; Wi-Fi 802.11b/g/n; Bluetooth; up to 8GB RAM (currently); Windows 8.1; status LEDs; optional keyboard/trackpad/remote; Android/iOS smartphone control app; all common AV formats playable with Kodi (3D/MKV/MP4/TS/MPEG-1/MPEG-2/DIVX/H.264/XVID/VIDEO_TS/ISO/MP3/FLAC/WAV...)

HCC VERDICT



Acer Revo One

→ £400 approx (4GB, 2TB, 1.7GHz i3)

→ www.acer.co.uk

→ Tel: 0371 760 1005

HIGHS: A powerful and versatile little package; works brilliantly with Kodi/XBMC; up to three HDDs can be fitted

LOWS: Will need external optical drive to play/rip discs; limited expansion potential (beyond RAM/HDDs); can't buy without Windows

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★



Curves in every direction!



Eclipse's speed demon

Eclipse once made the most absurd bass driver ever. **Adam Rayner** finds out if the legend of the Time Domain's brand is extant in its newest, smallest woofer

AV INFO

PRODUCT:
Dual eight-inch driver subwoofer

POSITION:
The smaller of only two subwoofers in Eclipse's line

PEERS:
Wilson Benesch Torus Infrasonic Generator; Mirage BPSS210; REL Gibraltar G1

ECLIPSE IS THE audio side of Japanese semiconductor company Fujitsu Ten. As a speaker brand, it is famous for its egg-shaped single-driver models, the Time Domain series. The design of these premium speakers isn't just for show – its effect upon the internal physics is to reduce back wave disturbance. And a single full-range transducer has no passive crossover, nor tweeter, thus no distortion in that crucial part of our hearing. In these days of bat-frequency super-tweeters there are those who deride the ability of a single driver to reproduce the absolute top tones, saying they are not as bright as designs with separate HF drivers. But then you actually hear the Eclipse speakers and such discussion goes out of the window. It's hilarious to watch someone get their first Time Domain experience; the detail and accuracy literally boggles.

Applying cunning enclosure acoustics and profoundly muscular motors driving very rigid small diaphragms works a treat for most musical frequencies. But bass is different. It requires logarithmically more energy and power to move a thousand times more air than a mid-band/high-frequency transducer. Yet essentially, Eclipse's approach to bass remains the same. It wants speed and it wants accuracy.

Opposites attract

The design of the Eclipse TD520SW subwoofer is all about achieving that goal. It is a sealed box with diametrically opposing

8in drivers. These are made from paper pulp cones with a little Kevlar, and sit in a robust cast chassis supported by chunky magnets. An aluminium shaft joins the two for supreme rigidity.

The driver arrangement is bipolar; the opposing cones operate in phase, both pushing out at the same time. Some other companies opt for an out-of-phase dipolar driver system, but these are about shifting great gouts of air with a happy gift of better accuracy than normal. The Eclipse approach is to use relatively small drivers (as well as this 8in model the company also makes a model with a pair of 10in drivers, the TD725SWMKII) and to drive them hard with a grip of iron.

This brings me on to the TD520SW's onboard amplifier. ICEpower digital technology, licensed from Bang & Olufsen, is employed here. The claimed 250W seems to be below where the market has got to these days (the likes of SVS are putting 500W amps inside £750 woofers) but Eclipse seems to think it is up to the task, and brags about it on its website.

Having been a major player in the 2.1 market, Eclipse has developed a unique dual-discrete connection system. The subwoofer offers two gain potentiometers, each partnered to their own low-pass filter (LPF) – one is for connection from your AV receiver via the line-level input for multichannel applications, the other is for 2.1 use with a stereo amp (via either the

The supplied handset covers all bases





The TD520SW features opposing 8in paper/Kevlar drivers (with protective grilles)

additional line-level input or the speaker-level terminals). The idea being that you can bypass the sub's crossover on each input (either by using the LPF bypass function or connecting at speaker level), therefore only using the one on your amp and reducing any delay in the low-range signal getting to the drivers.

There's a control panel on the woofer's front face, but you perform all functions, including input select, mute and dimming of the display LEDs, from the supplied full-sized remote.

Knock, knock...

First up on Blu-ray was the crescendo opening sequence of *Limitless* (which I picked as my favourite subwoofer demo sequence – see *Demo Screen, HCC #236*). It's a tremendous woofer workout, as Russian gangsters try to

'The Eclipse's skill is not only acceleration, it's stopping distance – there is simply no overhang at all'

smash their way into a fortress flat while our protagonist is teetering on his balcony balustrade. This is all about leading edges, hammers on a metal door, explosive wavefronts and fear-register bass. The banging and crashing starts quietly but grows and grows. With one sub I had on test it made it spit its grille across the room.

It took some time to balance the Eclipse subwoofer with my speakers. In an ideal world, you would be using the brand's Time Domain speakers with one of these – it's very much designed to work in perfect harmony. I paired it with my B&W floorstanding system, and I would rather have had the dual 10in model, or had five TD eggs to hook up as reference, for the TD520SW initially felt like a bit of a mismatch in my rig.

Yet once I adjusted relative levels, the allure of the TD520SW was apparent. Its bass output is rich and even though the specification looks less than profound, it reaches down with an accurate lack of undertone harmonic that surprised me enough to reveal I was guilty in some way of prejudging it. Yes, I had a minor marvel.

This subwoofer is beautiful and as inert as exposed rock when running. Those 8in paper/Kevlar drivers are highly compliant yet are held in an ICEpower fist. The onboard amp has a high damping factor and the bass tone has a fulsome quality that I have only heard from Morel carbon drivers in the past.

Eclipse's passionate blurb about speed is partly wrong, though. The skill here is not only about acceleration, it is about braking. There is simply no overhang and you don't hear that normally. There's no uncomfortable bass boom or onward wobble at all. This works brilliantly for rapid LFE effects.

With music material, the TD520SW exhibits a cracking cease-to-exist performance when tweaked and positioned correctly (those opposing, side-firing drivers merit placement at an angle to parallel surfaces). I dug out some old Peter Gabriel on DVD-Audio and enjoyed the effortless control and accuracy.

Oscar-winner *No Country For Old Men* did find this sub's weak spot, however. The real distant thunder captured on the mix was real-sounding and satisfying, but lacked the infrasonic weight of big air-movement that rival movie-mad subwoofers at this price can deliver.

The fast option

So be assured, this may be the highest-fidelity subwoofer around. It's certainly fit to pair with the most astonishing-resolution loudspeakers I ever heard (Eclipse's Time Domains) and even if you don't own those you're advised to audition if detail, speed and awesome stopping distance are your primary urges, rather than simple heavyweight bass.

Oh and that maddest driver ever? It was an aluminium 12in dish, carved from solid billet ■

SPECIFICATIONS

DRIVE UNITS: 2 x paper pulp/Kevlar 8in drivers, opposed, in-phase, with aluminium bar linking the rears of each driver's motor
ENCLOSURE: Sealed box
FREQUENCY RESPONSE: 25Hz-150Hz
ON-BOARD POWER: 250W ICEpower Class D
REMOTE CONTROL: Yes
DIMENSIONS: 459(w) x 420(h) x 444(d)mm
WEIGHT: 37kg
CONNECTIONS: 2 x line-level inputs; speaker-level input; speaker-level output

HCC VERDICT

Eclipse TD520SW

→ £3,000 approx → www.eclipse-td.com
 → Tel: 0207 328 4499

HIGHS: Superbly well-controlled, accurate bass; lightning-fast; beautiful build; good remote control; dual input feature

LOWS: High-fidelity is costly; may disappoint bass fiends seeking ultimate lows

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★

Hybrid PJ has promise...

... but ultimately this laser/LED mash-up from Acer fails to set **John Archer**'s world on fire



SPECIFICATIONS

3D: No
4K: No, 1,920 x 1,080
CONNECTIONS: 2 x HDMI; 3.5mm audio in/out loop; VGA input; S-video input; composite video port; RS-232 port for system integration
BRIGHTNESS (CLAIMED): 1,500 Lumens
CONTRAST (CLAIMED): 100,000:1
DIMENSIONS: 321(w) x 87(h) x 231(d)mm
WEIGHT: 3.95kg
FEATURES: Hybrid DLP/LED/laser optical system; built-in audio; claimed 20,000-hour lamp-life; Eco lamp mode for reduced fan noise; Acer ColorBoost II technology; 1.2x zoom; manual focus/zoom; 1.5-10m projection distance; vertical keystone correction; 1.5 to 1.8:1 throw ratio; claimed 27dB fan noise

TRUE INNOVATION IS becoming harder to find in today's commoditised, price-driven projector market. Yet you can find some in the shape of Acer's K750. Tucked away inside its surprisingly small, attractive white chassis is a hybrid projection system that for the first time combines laser technology with DLP and LED wizardry. Essentially, two LED lamps deliver red and blue while a laser is bounced off a phosphor disc for green.

Why bother with such a complex arrangement? Because it combines the long lamp life (Acer claims 20,000 hours) and eye safety of LED projection with the brightness (Acer claims 1,500 lumens – way higher than anything normally achieved with LEDs) and colour response of laser projection.

In for the long (throw) haul

It isn't the friendliest PJ to set up. The 1.2x optical zoom is fine, but a surprisingly long-throw lens arrangement (1.5-1.8:1) means it's not ideal for small rooms, and there's no optical image shifting either. Picture setup

tools include colour management, numerous themed presets (including a Movie mode), and an Eco light output you should use in dark rooms as it boosts contrast while also reducing fan noise.

I found myself rooting for the K750's picture quality given

the potential practical advantages of its hybrid design. But while it has its moments, it doesn't totally satisfy. While running in its Eco mode in a dark room it delivers plenty of colour subtlety with both the stylised colour palette of the final *Hobbit* film and the naturalistic *The Imitation Game*. There's little sign of striping and patching problems, and DLP's 'rainbow effect' only crops up during moments of extreme contrast.

Black level response is good. The scenes of Smaug's attack on Lake-town enjoy deep night skies behind the flames. This same scene also reveals strong motion handling, as Peter Jackson's fast-moving camera work is delivered without judder or blurring. This makes it easy, too, to appreciate the K750's detailing with the best-quality Blu-rays.

A big problem is this PJ's tendency to infuse pictures with a green undertone. This problem increases as you run the projector more brightly. It's at its least offensive when viewing in dark rooms with the brightness low, but is a significant issue when running the projector brightly enough to counter ambient light.

There are also issues with lost shadow detail in dark areas, and avoiding the green problems means you'll never realistically be able to get the unit's claimed maximum brightness of 1,500 lumens. So one of its key advantages seems wasted.

I hope Acer keeps experimenting with its hybrid tech, but until it works out how to deliver laser-driven greens in a more balanced way, it can be considered a work in progress ■

AV INFO

PRODUCT:
Full HD PJ using a hybrid optical system

POSITION:
One of Acer's most expensive home PJs

PEERS:
Epson EH-TW6600; Optoma HD50

HCC VERDICT

Acer K750

→ £1,250 approx → www.acer.co.uk

→ Tel: 0371 760 1005

HIGHS: Decent black levels; good sharpness and detail; attractive design; long lamp life

LOWS: Greens are too dominant; some missing shadow detail; have to limit its brightness; no image shifting

Performance ★★★★★

Design ★★★★★

Features ★★★★★

Overall ★★★★★

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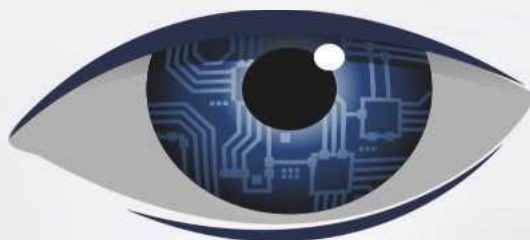
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Music fun, cubed

Mark Craven finds space in his life for Sony's smallscale Bluetooth speaker

YOU CAN GET the measure of an affordable gadget like Sony's SRS-X11 by how much you use it – and since getting my hands on this £60 Bluetooth speaker I've been using it plenty. It's followed me around the house, sat on a kitchen counter or a bedside table, and into the garden and beyond. It's cute, clever and easy to fall in love with.

The SRS-X11 measures just 61mm in all dimensions, and weighs a paltry 215g. It's portable in terms of size and in terms of functionality – the internal rechargeable battery (the device powers via microUSB) claims a lifetime of up to 12 hours. Inside is a 10W amplifier and three drivers, an active one facing front and two passive radiators on the adjacent faces.

You can get your music pumping via Bluetooth (with NFC one-touch hookup), 3.5mm input or USB.

Sound quality is enjoyable although obviously a tad limited in nuance. The overall



tone is bassy – which works better for Stevie Wonder's *Superstition* than talk radio – and a bit boxy (if you'll pardon the pun). However, this little gizmo makes a solid fist of sounding bigger than its dimensions, goes reasonably loud, and is perfectly adequate for uncritical listening.

A final neat trick of the SRS-X11 is the fact that two devices can be paired together to create a wire-free stereo array. This is very easy

to do (one unit automatically hunts the other down), and status LEDs let you know which is left and which is right.

Overall, this speaker (available in black, white, red, pink and blue finishes) makes for a fun, and useful, accessory ■

The SRS-X11 comes with a carry strap

HCC VERDICT

Sony SRS-X11 → £60 approx

Overall ★★★★★

BT YOUVIEW+ PVR → £180 approx

BT TV goes smaller and faster

A 4K PVR is on the way, but many BT customers can make do with this, says **Adrian Justins**

THIS 500GB PVR is free to BT customers taking its top-tier Entertainment Plus TV package for £10 a month (plus broadband and activation fees). Otherwise, it's around £180 and without paying monthly fees you can still access the usual raft of catch-up TV services, rent movies from the BT Store and take advantage of the YouView scroll-back feature

BT TV employs the YouView IPTV platform



to download shows, as long as they also appear in the catch-up portals from BBC, ITV, etc. Only BT TV subscribers can access Sky Store, Sky Movies, Curzon movies, Netflix, Now TV and Sky Sports (and they'll have to pay more for some services and for HD privileges).

I have BT broadband and use a better router than BT's Home Hub but in order to access the non-Freeview (broadband delivered) channels in the EPG, such as BT Sport, I had to swap back routers.

The PVR itself is much smaller than the first-gen BT YouView box, and a little more stylish, with a strip of LEDs that

glow brightly during use. The neat-looking OSD reacts more quickly to commands from the remote than Sky's HD PVRs (fast

forward/rewind at 60x is very impressive). The YouView button calls up a horizontal info bar at the bottom of the screen, providing access to the EPG, catch-up players and apps, BT TV, settings, search, discover and MyView. The latter is the library of recordings where a postage stamp-sized window provides continuity with live broadcasts.

As a PVR the box is versatile and simple enough to drive. Picture quality with broadcast programmes is a tad soft; IP-delivered content is much sharper. Sound can be output as stereo or Dolby Digital 5.1 over HDMI only.

An efficient offering for BT TV devotees ■

HCC VERDICT

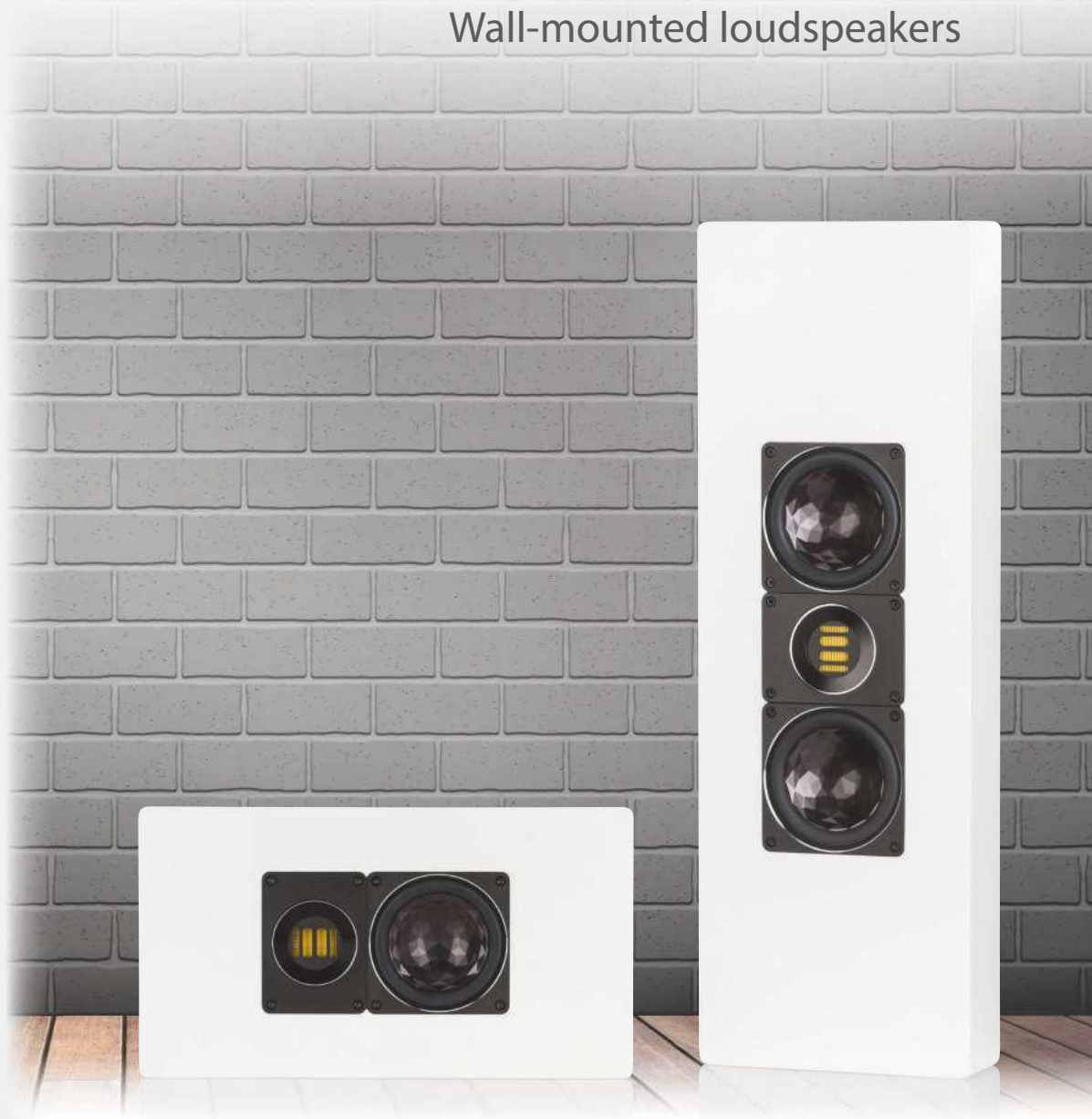
BT YouView+ PVR → £180 approx

Overall ★★★★★

On-wall

Turn the music on-wall

Wall-mounted loudspeakers



Accessorize me!

Active stereo speakers

Adrian Justins discovers that the hi-fi world offers an intriguing alternative to a traditional soundbar in the shape of separate, active speakers. Here's a quartet of contenders

YOU'VE SPLASHED OUT on a lovely new TV screen but need to sort out its dodgy sonics. Sadly, a 5.1 system is out of the question for fiscal or spatial reasons so your first thought is to buy a soundbar or soundbase. But what if you can't find one that fits on the stand or doesn't block the view of the screen? Then it's time to spread your acoustic net a little wider and consider scoring yourself a pair of active stereo speakers instead, especially if you intend to listen to music when not watching telly.

When placed either side of a screen, separate speakers offer a much better stereo

spread than the majority of soundbars. They also have bigger cabinets capable of delivering more bass than their slender rivals, which often need a partnering subwoofer.

'Placed either side of the screen, stereo speakers have a much better sonic spread than most soundbars'

Okay, so they don't have HDMI inputs, but then nor do many soundbars and soundbases. Nor do many soundbars offer Dolby or DTS decoders; they simply accept PCM signals. Many active stereo speakers have PCM-compatible optical inputs, while others rely on analogue inputs.

All four models auditioned here can do a job as a soundbar alternative. They all also have the bonus of Bluetooth wireless audio streaming, and at around £300 or so, are built and tuned to standards high enough to deliver the sonic goods. It's time to wire them up and get listening...

£300 approx
→ www.audiopro.com

Audio Pro Addon T8

Punchy sound with a sideline in multiroom audio

EACH OF THE Addon T8's two-way bass reflex cabinets is fashioned from a durable plastic that looks ice cool, especially in the polar white option. The driver array consists of a single 1in soft dome tweeter, which is protected by a permanently-fixed grille, and an unprotected 3.5in woofer, which may be vulnerable to the prods of young inquisitive fingers. Connectivity comprises stereo phonos and a 3.5mm aux line in, plus aptX (CD-quality) compatible Bluetooth. There's also a handy subwoofer line out and a USB for an RF adapter that lets you use the Addon T8 within an Audio Pro multiroom setup. The Kit-Kat-sized (two fingers) remote control is premium quality; weighty with a brushed aluminium finish.

Hooked up to the 3.5mm headphone output of a Samsung screen, the Addon T8's 2 x 36W Class D amplifier delivers a surprisingly powerful sound for such compact enclosures, with an impressive stereo spread. In terms of clarity, the cave scene from *Prometheus* is highly polished with plenty of subtle detail to be heard in the breathing of the explorers, the sound of running, splattering water and the clicking of the mapping drones. Higher frequencies are a touch bright, so that gunfire, during a shootout in *Fast and Furious 6*, grates ever so slightly. Generally, the Addon T8 is well suited to dialogue-heavy material and has an extended bass response that handles explosions competently. Musically, it's no slouch either. Indeed it's arguably more at

home with tunes than movies. The speakers are easy to pair with a Bluetooth device but you do have to scroll to select the Bluetooth input. They deliver a convincing and pleasingly defined, well-balanced soundfield. The upper registers of a piano in Cyrus Chestnut's *Grandma's Blues* are light and airy, and segue deftly with the double bass, which is tight and fast.

HCC VERDICT

Audio Pro Addon T8 → £300

Overall ★★★★★

Blue Aura X30

Looking for a little leather in your life?
Look no further

UK-BASED BLUE AURA is new on the AV scene and clearly has Audio Pro in its sights. The X30 has very similar dimensions and a feature roster that's almost identical to the Addon T8, including aptX Bluetooth 4.0, stereo phonos, a subwoofer line out and USB jack for use with a multiroom-enabled wireless dongle. The X30 is £40 cheaper than the Addon, however, and ditches the 3.5mm analogue socket in favour of an optical input, while power output from the Class D amp is a mere 30W in total.

HCC VERDICT

Blue Aura X30 → £260

Overall ★★★★★

The X30 also sports two drivers per cabinet, a 0.75in soft dome tweeter and 3.5in paper cone woofer with a crossover set at 2,500Hz. It comes with a rather fetching tactile *faux* leather exterior, and is available in Graphite (pictured), Sahara or Polar White. Build quality is reassuringly good, with a removable metal grille hiding the twin driver array.

As with the Addon T8, the designers deserve credit for delivering a sound that's much more powerful than expected, although the bass response cuts off at 55Hz and it shows, with the car-park destruction and car chase through London in *Fast and Furious 6* rather lacking in welly. Mid and high

frequencies get a much better deal – dialogue is clear and dynamic, and gunfire is pin-sharp without sounding coarse. The X30 is very much at home with subtler fare such as the *Prometheus* cave scene, and serves up a detailed and impactful array of effects and speech.

Musically the X30 again favours non-bass heavy material, with Cyrus Chestnut's *Grandma's Blues* sounding smooth and well-rounded, especially the tinkled ivories. All told, it's a decent performer for the money.



£300 approx → www.ruarkaudio.com

Ruark MR1

Elder statesman, but still impressive

THEY'LL HAPPILY SIT on a tabletop but there's nothing off the shelf about the construction of the £300 MR1s from Brit brand Ruark. The curved-edge cabinets are fashioned from real wood (in walnut veneer, white lacquer or black lacquer) and Ruark has used custom-designed drive units, along with a Class AB stereo amp, delivering 20W of power. Each loudspeaker is rock-solid and behind the fine mesh grille are a long-throw 3in woofer and a 0.75in textile dome tweeter, both with shielded neodymium magnets.

Socketry is, however, the least generous of this quartet, comprising just a 3.5mm line in to complement the aptX-compatible Bluetooth wireless streaming, and a subwoofer line out.

One advantage of using your screen's headphone output is that you can dispense with the speaker's remote control and employ the TV to adjust volume, especially if, like the MR1, the speaker automatically wakes itself up from standby when it receives a signal and

enters sleep when the airwaves fall silent. Additionally, the MR1 has a control knob on top of one speaker that can alter volume and change the source.

The MR1 has been part of Ruark's stable for a couple of years, and has more than enough horsepower to deliver a broad and impactful soundfield. It manages to outdo the Audio Pro and Blue Aura for overall ease of delivery at loud volumes, retaining its detail and control. It is especially good in the midrange, so that dialogue in *Fast and Furious 6* is more resonant, and there's more clarity when various characters speak against the melee of the car chase/shoot-out. Bass is reasonably punchy



and well controlled – it imbibes a rich, warm sound to Gregory Porter's *Hey Laura* (streamed via Bluetooth) but there's no danger of explosions rattling your windows.

HCC VERDICT

Ruark MR1 → £300

Overall ★★★★★

Tangent Spectrum X5BT

The odd one out with an even performance

THE SPECTRUM X5BT is just that little bit different to its rivals here. Most obviously in terms of size; at 345mm, each cabinet is twice the height of any of the other three models. Furthermore, the rated power output is a relatively hefty 2 x 50W and connectivity includes a coaxial input as well as optical, stereo phonos, subwoofer out, 3.5mm aux in, Bluetooth aptX 4.0 and a charge-only USB.

A minor irritation is that the front LED glows bright red like a laser when the unit is in

standby. More impressive is the remote control, which fits plenty of (well-spaced) buttons and makes it easy to select inputs, and adjust bass and treble levels.

The X5BT's neutral black or white colour scheme can be nicely enhanced by the extra wooden stands. Build seems robust. A wide dispersion 1in soft fabric dome tweeter is complemented by a 5in long-throw paper coned bass driver.

Unsurprisingly, given their larger size (and that big bass driver), these ported cabinets offer a very impressive bass extension, and higher frequencies are equally good. The physical and aural carnage of *Fast and Furious 6*'s car chase is underpinned by meaty, solid

explosions and there is real punch to sounds such as glass breaking, engines revving and guns firing. Dialogue is that little bit sharper than the competition, too, and with *Prometheus*, the fuller sounds of the drones whirring and deep breath of a scientist are emblematic of the slight extra detail the X5BT offers.

These stand out in terms of design, but make the case for bigger being better.



HCC VERDICT

Tangent Spectrum X5BT → £300

Overall ★★★★★

Final standings

ALL FOUR OF these models are good enough to recommend for use both with your music and your movies, and this dual functionality may be reason enough to have you giving them consideration over a soundbar.

Furthermore, none of them has any particularly bad traits in terms of performance or build, and each offers something a little different in terms of looks. However, there is just enough between them to make choosing the rankings straightforward.

The Audio Pro Addon T8 is knocked off the podium by its Blue Aura X30 rival, mainly by virtue of the £40 difference in cost. They are both highly competent with many sonic similarities, although the Addon T8 may be a bit too much on the bright side for some tastes, while the X30 lacks some low-end heft. Both models could also prove useful in their ability to be part of a multiroom audio setup.

Second place goes to the Ruark MR1, which is less versatile in terms of connectivity but has

the handy bonus of a speaker-top control button and delivers a soundfield that's coherent and rounded.

Off on a Tangent

The winner, though, is Tangent's Spectrum X5BT, which for the same money as the Audio Pro and Ruark delivers a more powerful and detailed sound, helped by a more muscular bass response and the unique ability to adjust its EQ using the remote. Their only drawback is the largescale design, which may not be what you had in mind if you have a slinky TV. Measure up before you buy ■

Tangent's Spectrum X5BT is available in either black and white finishes, with walnut plinths



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DIGITAL COPY

Dinosaurs! Jeff Goldblum! That John Williams score! A run-out of *Jurassic Park* on BD reminds **Mark Craven** that there's nothing wrong with his soon-to-be-outdated home cinema system

I'M NOT SURE how this happened, but I actually managed to enjoy a movie the other day. Yep, you read that right – full-on, lights dimmed, feet up, brain-engrossed filmic entertainment occurred in the Craven household. It was so remarkable I wrote it in my diary.

Don't assume from this that I don't get to watch a lot of movies, however. I am lucky in that I can watch movies and say it's 'for work' fairly regularly before Mrs Craven smells a rat and unplugs the Blu-ray player. And I know that for you that might not be the case.

The film I watched was Steven Spielberg's stonkingly brilliant *Jurassic Park*. Well, stonkingly brilliant to a degree anyway. Richard Attenborough's character is still a prat, some of the dialogue is still pitiful, not enough people get eaten and the Blu-ray image is savaged by edge enhancement. Yet the score still gives me goosebumps, the soundmix still delights, the VFX are great and I'll never tire of the sheer bravado of the movie as a whole. I'm hoping that *Jurassic World* (I'm waiting for the disc release on that one) has the same flair.

Too much to take in

So why haven't I been enjoying more movies? It's because the last few months (more like a year, actually) have seen a whirlwind of AV technology developments that have threatened to curtail the enjoyment I get out of my existing setup. I've been analysing it too much, because practically everything in my system, from the Full HD disc spinner to the non-HDR LED screen and the AV receiver that will never be capable of decoding a DTS:X bitstream, is soon to be outdated. And something that's soon to be outdated surely isn't very good, right?

Wrong. Any AV setup that doesn't require you to squint to make out the display or cup your ears to hear dialogue is fine. And with the current discussions about standards and formats and next-gen supervotsits being so unavoidable I think that's a point worth ramming home.

Not got Dolby Atmos? Don't worry about it! The setup process is a faff and there are only about eight films available, half of which you don't really want to watch anyway. **Not built a library of hi-res music downloads? Why would you?** Ignore shelling out fortunes on Studio Master versions of CDs you already own and get a Spotify account instead. Upset that your flatscreen is flat rather than curved? Don't be. People only buy curved TVs to show off to their friends. (One of those three previous statements I actually truly believe, by the way).

You see, there's a lot to be said for traditional 5.1 audio and Full HD visuals (even of the upscaled variety). Only most hardware manufacturers aren't saying it. There's a rush on to coax us into investing in the Next Big Thing, which naturally implies that the Current Big Thing isn't up to scratch. For instance, there's an advert from a high street retailer doing the rounds on the radio at the moment that explains that 4K TVs offer 'four times the detail, depth and sharpness' of a Full HD set. Maybe so, but Full HD is – last time I checked – still brilliant.

My point is: if you've currently got some niggles in your setup, have UHD envy or are worrying that AVR brands won't be happy until we've all got speakers in our floorboards, then you should just relax, put on one of your favourite movies (preferably with a rousing John Williams score) and forget about it ■

*Are you worried that your AV setup isn't state-of-the-art?
Let us know: email letters@homecinemachoice.com*

Whenever he watches *Jurassic Park*, **Mark Craven** still hopes one (or even both) of the annoying kids gets munched by a dinosaur. Or at least wounded





FILM FANATIC

There's more to importing Blu-rays than what the US has to offer, reckons **Anton van Beek**. And you don't even need a multi-region deck to get involved...

EVER SINCE DVD first launched in the UK, home cinema aficionados quickly learnt the importance of owning a multi-region player. Between the initially slow roll-out of titles and the inferiority of many that did appear on these shores (including missing extras and splitting a film across two sides of a disc), it became vital for film fans to be able snaffle discs from all over the globe if they really wanted to get the best out of the format.

Thankfully, back in those halcyon days, the preponderance of quick 'n' simple handset hacks ensured that multi-region DVD players were commonplace. And they weren't easy to find only online, but also in many high street stores across the nation. Indeed, my own entry into DVD came via a region-free Samsung model I picked up from the Wrexham branch of Woolworths in the tail-end of the 1990s. Oh, the glamour.

The advent of Blu-ray made things a little harder, due to the scarcity of decks that could be region-hacked straight out of the factory by their handsets. Suddenly, AV-hedz who wanted to upgrade to HD and stay multi-region found themselves faced with the extra cost of either buying a modified Blu-ray player (adding a noticeable premium on top of the original RRP) or installing separate UK and US models in their setup. As such, it's no surprise that none of my film fan friends who once owned multi-region DVD players followed suit when they made the jump to BD.

Beyond the US

But it's worth remembering that just because you've opted to stick with a Region B Blu-ray deck, it doesn't mean you're limited to only buying discs that have been released on these shores. And no, I'm not just talking about 'All-region' US titles. There

is, in fact, a whole world of Region B Blu-rays out there ready to be imported and enjoyed on your bigscreen.

For instance, **Blu-ray has been a much bigger success in Germany than in the UK, and the range of titles available on the format dwarfs what you'll find over here.** Thankfully, a very large proportion of the discs are English-friendly. Just take a look at the German *Strange Days: 20th Anniversary Edition* platter we reviewed last issue, which features an English DTS-HD MA 5.1 mix as well as English audio on the majority of its extra features.

Then there's John Carpenter's killer-car flick *Christine*, which made it's BD debut in the US as one of boutique label Twilight Time's limited editions. Now out of print, second-hand copies change hands for ridiculous prices online. Why bother when you can pick up exactly the same platter from Germany in a non-limited form courtesy of Sony Pictures?

This situation isn't limited to older films either. Upcoming Thomas Jane action-thriller *Into the Grizzly Maze* only just got a cinema release in the US, but has been available on BD in Germany under the title *Red Machine* since February 2014.

Germany, of course, is only the tip of Region B import iceberg. How about adding an Italian Blu-ray of the legendary Rita Hayworth film noir *Gilda* to your disc library? Or bolstering your Brian De Palma collection with the Australian release of *Body Double*? How about a Nordic *Fright Night* or a French *El Mariachi* Trilogy boxset? As you can see, the idea of living with a Region B-locked deck becomes a lot less restrictive when you start thinking beyond the UK and the US for where to buy your discs ■

Do you import Blu-rays from outside of the UK and US? Let us know: email letters@homecinemachoice.com

Anton van Beek can't wait to give his system a 3D audio upgrade, if only to justify importing the *Metallica: Through the Never* Atmos BD from Germany



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PICTURE THIS

As home cinema moves into the Ultra HD era, **Vincent Teoh** discusses the implications the resolution boost has for viewing distance and optimum screen size

THE TOPIC OF viewing distance has once again sparked debate with the advent of 4K/Ultra HD. Related to this is the screen size of your display, with one popular chart commonly cited by 4K naysayers to prove your eyes won't be able to tell the difference between UHD and 1080p resolution from normal viewing distances at sub-80in screen sizes.

Should you stick to non-4K TVs then? Of course not: the best picture-enhancing tech, ranging from effective local dimming to high-quality motion processing, is now only implemented mostly on high-end UHD models. If you're after the best image quality available, it makes sense to buy a 4K TV. And that's not even taking into account other non-resolution benefits the UHD format brings, such as HDR (high dynamic range), WCG (wide colour gamut) and HFR (high frame rate).

But back to the subject under discussion. At any screen size there are several factors to consider when determining the optimal viewing distance. The first is the pixel density of the screen – how tightly packed the pixels are. If you can make out the pixel grid, then you're probably sitting too close to the TV, and should move further backwards until the individual pixels merge into a smooth image.

It's easy to generalise that all same-sized TVs featuring the same resolution will deliver the same pixel density, but displays can exhibit a lower pixel-fill ratio due to how subpixels are arranged. For example, some low-cost TVs use a pentile layout where the subpixel sitting to the right of the green subpixel alternates between blue and red (with the order reversed between odd and even lines), creating a jagged 'honeycomb' appearance that's more noticeable at the same distance compared with the conventional RGB stripe arrangement. LG's WRGB OLED TVs fall under the same category, which is why

some users observe 'screen door effect' more readily on 1080p OLEDs, requiring them to sit further away.

Finding the sweet spot

With 4K displays, sit too far away and you'll start losing perceived detail and the resolution benefit. But with lower-quality sources, being too close is likewise disadvantageous, magnifying the upscaling deficiencies (especially from SD) and compression artefacts like mosquito noise and macroblocking. Clearly, it's a fine balancing act.

With 4K material thin on the ground and HD content still rife, a good rule is to aim for a distance 1.5x to 2x the diagonal measurement of your TV. So for a 50in screen, you'd ideally sit six to eight feet away to benefit from the increased sharpness and detail without seeing irksome pixellation or artefacts.

Of course, in reality most households don't rearrange their furniture just to attain the optimum viewing distance, so perhaps a more pertinent question is how big a TV should you buy given where you normally sit. The average viewing distance in the typical home is around nine feet, which translates to an ideal screen size of 70in for an HDTV!

My recommendation is to buy as large a TV as your budget will allow: no film geek has ever gone to heaven regretting that they've owned too big a TV. And don't worry about a giant screen dominating the room – you'll get used to it. And as long as you're not watching grubby SD channels, video processing on modern TVs is usually competent enough to give a good picture on a large-sized display, which is also more likely to satisfy the field-of-view requirements (30° and 36° for SMPTE and THX respectively) for maximum immersion ■

*Are you happy with the size of your TV or projector screen?
Email letters@homecinemachoice.com*

Vincent Teoh has worked as a professional video calibrator for seven years, and gets to sleep at night by counting imaginary pixels in his head





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Feedback

Got an axe to grind? Need to comment on current technology?
Want to share your knowledge with our readers? **HCC** is here to help

I have a bolt-hole too!

Hi all. I loved Steve May's article on a small home cinema bolt-hole (*AV Avenger*, HCC #248).

Yes, I have one! I have the main cinema in the house and a cheap second cinema in my cabin.

My cabin in the garden is 12ft by 8ft and it is made up of old and cheap equipment. I have an 8ft screen that I bought for £60. I am using an old Denon AVC3800 with a pair of old Denon speakers. I have a very cheap LED projector that I bought for £150 with a built-in DVD player, although to get the audio into the amp I use a separate DVD player – a Toshiba

SD-210E. It works quite well and I mostly use it to project Laserdiscs and DVDs.

David Fox, via email

Mark Craven replies: Looks like retro shed heaven, David. Anyone else got a cinema room even smaller?

Physical education

I wholeheartedly agree with Steve May on the subject of physical media (*AV Avenger*, HCC #247). As a video, then DVD and now Blu-ray collector for around 30 years, there's nothing better than having a physical product. However, I must say that I like the

idea of having the best of both worlds and did briefly dip my toes into the internet TV arena, but financial constraints meant I had to choose and I chose the physical disc.

The aforementioned finance issues mean I'm restricted to second-hand and cut-price new items. I choose my purchases carefully and with thought and can be up to two years behind the rest of the world on my viewing/collecting. Despite this, I'm happy in the knowledge that the physical copies are what I want and I'm not paying monthly fees for content, most of which would not be of interest to me.



Old kit still doing the job!

★ STAR LETTER...

The future is depressing for plasma fans

I read with interest the opinion piece from Vincent Teoh. I share his passion for plasma but the future for us plasmaphiles is pretty depressing right now. When Panasonic threw in the towel we lost the standard-bearer for this technology, and this has left us exposed to a market that values resolution and Smart features over outright picture quality. It's a cold and unforgiving landscape to survey for those used to perfect screen uniformity, natural motion and wide viewing angles.

My own set, the Pioneer PDP-4280XD, was the last of the 42in Kuros, a size of screen that is particularly poorly served by today's market. When it finally gives up the ghost I'll be hoping that a flat OLED with decent motion handling has been introduced to the sub-50in segment, but every OLED announcement from LG is about

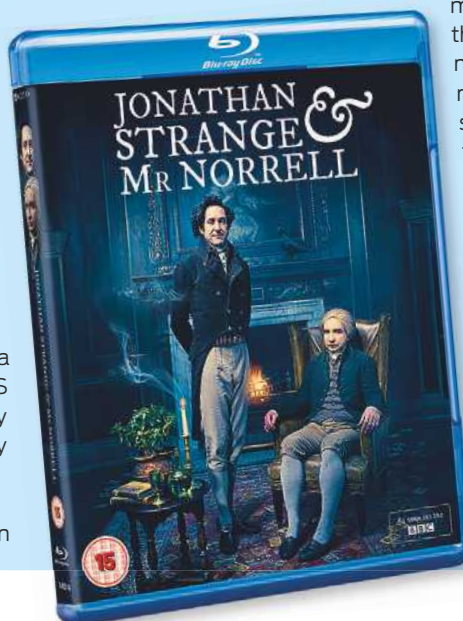
55in plus, and everything is bloody curved. I'm pretty sure it's easier to produce a flat 42in OLED panel than a curved 65in one, but this doesn't seem to be the point. LG has decided that OLED is a premium technology for the top-end of a market which can't be serviced by a mid-size screen. It's as if they think that those of us with smaller lounges don't have the same quality expectations from their TVs. I'm sure it's a sensible strategy from a manufacturing/sales and marketing point of view – if I was running LG I'd probably make the same decision, particularly if I had a warehouse full of smaller IPS panels to shift. Unfortunately it leaves me dreading the day when I'll be forced to buy an edge-lit LCD due to the lack of alternatives available. I can

only hope that OLED will eventually trickle down to smaller screen sizes once other brands enter the market, and today there is still no sign of that happening.

The Pioneer and Panasonic stories tell us that there is no

money to be made from premium TVs. Both companies famously lost money for each plasma set they sold because the market could not sustain the prices they would have had to charge to cover their costs. The irony is that the videophile market would now support these high prices if the market was stable and manufacturing was kept small-scale. I'd blow my savings tomorrow on an all-new Pioneer plasma, particularly at 42in or 46in, and particularly if it was a dumb monitor rather than a 'Smart' gizmo-laden Wi-Fi fun station.

I'm not interested in a 3D UHD HDR blah blah blah. I just want a beautiful picture to watch. Maybe this is why I'm still happily watching an eight-year-old 720p plasma that's hopelessly outdated and





HCC reader Gary's new room décor

I fully understand that video-on-demand technology is going to be the future as the kids/teenagers of today are the internet/download generation and that eventually the physical product will be a thing of the

past. In fact, the decline may have already started, as I'm seeing Blu-ray discs for sale in our local pound stores. So RIP to physical discs... but not just yet please!

Paul Sida, via email

Steve May replies: Thanks for agreeing with me! Yes, it's obvious that a good solution for a film fan is to combine physical media (so it can be shelved, cherished and offer the best AV quality) with on-demand platforms, particularly if you have an addiction to TV series.

Delaying purchases is a smart idea – Blu-rays often drop in price quite rapidly. End of 2014 releases such as *Transformers 4* will now be selling for under £10.

Mark Craven replies: Joe Kane (see our interview on p20) agrees with you Paul when you say that eventually the physical disc could be a thing of the past – but his reasoning is that better image quality is more readily achievable when it's delivered via the internet (over a fast connection, obviously). If Blu-ray is eventually replaced by an 'Ultimate' UHD system, then at least AV standards may be maintained.

Cinema room touch-up

Hi Team HCC. You may remember last year you ran our cinema room story (*AV-Holic*, HCC #239). I thought I would drop you a few pictures of how we finally decorated the room.

Who says looks don't count? We got the wall murals from a

company called WallSauce online. I am sure you will agree they really improve the feel and atmosphere of the room. There is also a lot more black paint in the room which has made it feel like you are at the movies.

The only other upgrade is the Optoma HD50 from Richer Sounds, as the previous projector had a few problems. The only disadvantage of a new projector was having to build a new cabinet door to fit around the lens – apart from that the quality is amazing.

Our family are still enjoying the home cinema experience each week and our daughters like to use it as a party room with disco lights and music cranked up full.

Gary, via email

Mark Craven replies: Thanks Gary. We're glad your movie den is proving such a massive hit with all the family! As for the wall

still completely marvellous.

Jacob Morrison, via email

Mark Craven replies: 'Smart gizmo-laden Wi-Fi fun station' is my new favourite description of a modern TV, so thanks for that Jacob!

You talk of being perfectly happy with your 'outdated' Pioneer plasma. Well said. As I write in my column (p79), just because something is outdated it doesn't mean it's no good!

You're right that LG has decided that OLED is a premium technology. And, to be fair to LG, it really is. Put an OLED TV up against an edge-lit LED model and the performance step-up (in terms of black level and viewing angle in particular) is boggling. In fact, the only thing keeping LG's OLED model off the top spot in our Buyer's Guide is its lack of support for forthcoming HDR-laden UHD Blu-rays.

Regarding the curve, I'll say that it doesn't really have a negative impact on image quality. You'll forget it's there after a while. Secondly, stepping up from a 42in Kuro to a 55in OLED isn't necessarily a major issue in terms of living room space. The OLED is much thinner in both bezel and depth, so you may find you can squeeze it in to the spot occupied by your plasma without too much fuss.

I know you'll stick with your Kuro until it dies. Maybe by then a sub-50in OLED will be available.

Star letter-writer Jacob wins a copy of BBC One's adaptation of Susanna Clarke's acclaimed magical-fantasy novel, *Jonathan Strange & Mr. Norrell*, on Blu-ray. *Jonathan Strange & Mr. Norrell* is out now to buy on Blu-ray and DVD, courtesy of RLJ Entertainment's Acorn label.

CONTACT US...

Write to HCC, AV Tech Media Ltd, Enterprise House, Enterprise Way, Edenbridge, Kent, TN8 6HF, or email us at letters@homecinemachoice.com

Please note: we cannot guarantee to print/answer all the letters we receive. Sorry.

mural, we love it – although we might have opted for Mr Freeze...

It's good to be reminded that our home cinemas are continually being tweaked and refined – be it with new decoration, a new layout or some new AV electronics. So, dear readers, feel free to send us pictures of whatever changes you've made to your room. Whether it's a new AV receiver or some funky lighting, we'd love to see it.

Atmos conundrum

Hi. I read your review of the Pioneer SC-LX88 (which I own) and I'm wondering if you could help me with a question regarding Dolby Atmos. I want to add four ceiling speakers to my existing 5.1 setup and am unsure as to which cable goes where. As you set up 5.1.4 on your system I was wondering if you could explain. Dave, via email

Richard Stevenson replies:
The manual supplied with



Pioneer's SC-LX88 covers off all the bases regarding the numerous speaker setups the AVR is capable of. As such, it is a bit of a word-fest! Page 27 offers the diagram of a 5.2.4 system (or 5.1.4 for those with only one subwoofer) and it is a bit odd, now you mention it.

First of all, lace up your regular 5.1 speakers in the usual

places (with the surrounds hooking up to the Surround terminals). Then, ignore the terminals labelled Top Middle. These are to be used if you're only running two overhead channels, rather than four. Instead, connect your two front ceiling speakers to the terminals labelled Surround Back, and your two rear ceiling speakers to

Pioneer's Atmos-ready SC-LX88

the terminals labelled Front/Wide. And, yes, we know that doesn't sound right.

You'll also need to go into the 'Manual SP Setup' menu, select 'Speaker System', and then choose the '5.2.4ch' option.

This is the method I used and it worked for me. Good luck! ■

Win! Three great Blu-rays up for grabs

Just email your answer to Competitions@homecinemachoice.com to be in with a chance



Home

Prepare yourself for a close encounter of the adorable kind when DreamWorks Animation's sci-fi comedy *Home* beams down onto Digital HD from July 13, followed by Blu-ray and DVD on July 20. And we've got five copies of the *Home* Blu-ray to give away.

Question:

Which *Big Bang Theory* actor voices the alien Oh in DreamWorks' *Home*?

Answer:

A) Kaley Cuoco-Sweeting B) Jim Parsons C) Johnny Galecki

Email your answer with '**Home**' as the subject heading – and include your postal address!



The Woman in Black: Angel of Death

This sequel to the most successful British horror film of recent times, *The Woman in Black*, is available to download from July 6 and on Blu-ray and DVD from July 13, courtesy of Entertainment One. We've got five *The Woman in Black: Angel of Death* Blu-rays up for grabs.

Question:

What is the name of the old house that the ghostly 'Woman in Black' haunts?

Answer:

A) Eel Marsh House B) Shark Swamp House C) Whale Bog House

Email your answer with '**Angel**' as the subject heading – and include your postal address!



X-Men: Days of Future Past – The Rogue Cut

Featuring an extended cut and all-new extras, *X-Men: Days of Future Past – The Rogue Cut* is available on Digital HD, Blu-ray and DVD from July 13, courtesy of

Twentieth Century Fox Home Entertainment. Answer the following teaser to be in with the chance of winning one of five Blu-rays...

Question:

Who plays Rogue in the *X-Men* movies?

Answer:

A) Anna Paquin B) Anna Nicole Smith C) Anna Kournikova

Email your answer with '**Rogue Cut**' as the subject heading – and include your postal address!

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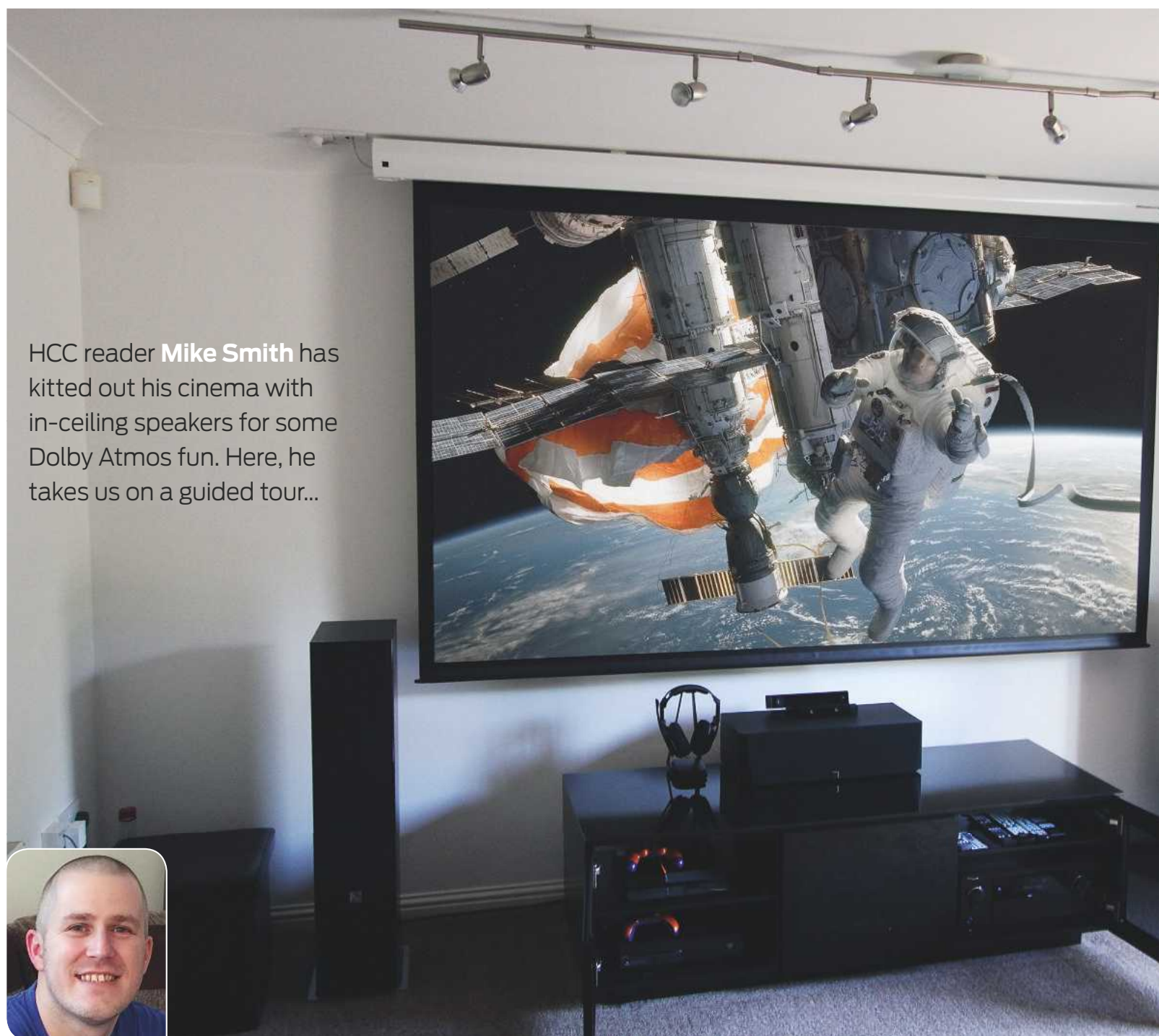
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HCC reader **Mike Smith** has kitted out his cinema with in-ceiling speakers for some Dolby Atmos fun. Here, he takes us on a guided tour...



Reaching for the stars

Welcome to the AV-Holics club! Introduce yourself...

Hi. My name is Mike Smith, and I am 38 years old. I work as a trainer for a large manufacturing company.

How long have you been into home cinema – and what was the first setup you had?

I first got into home cinema in my early '20s. My system then consisted of a Pioneer CLD-925 Laserdisc player with a Sony Wega TV.

The sound was taken care of by a Sony Pro-logic amplifier running the front three speakers (all Tannoy Mercury models) and then a stereo amplifier was wired up to provide stereo sound for the rear (which were

standard Sony stereo speakers). We called it 'Dodgy Digital'.

So, what kit do you have in your current system?

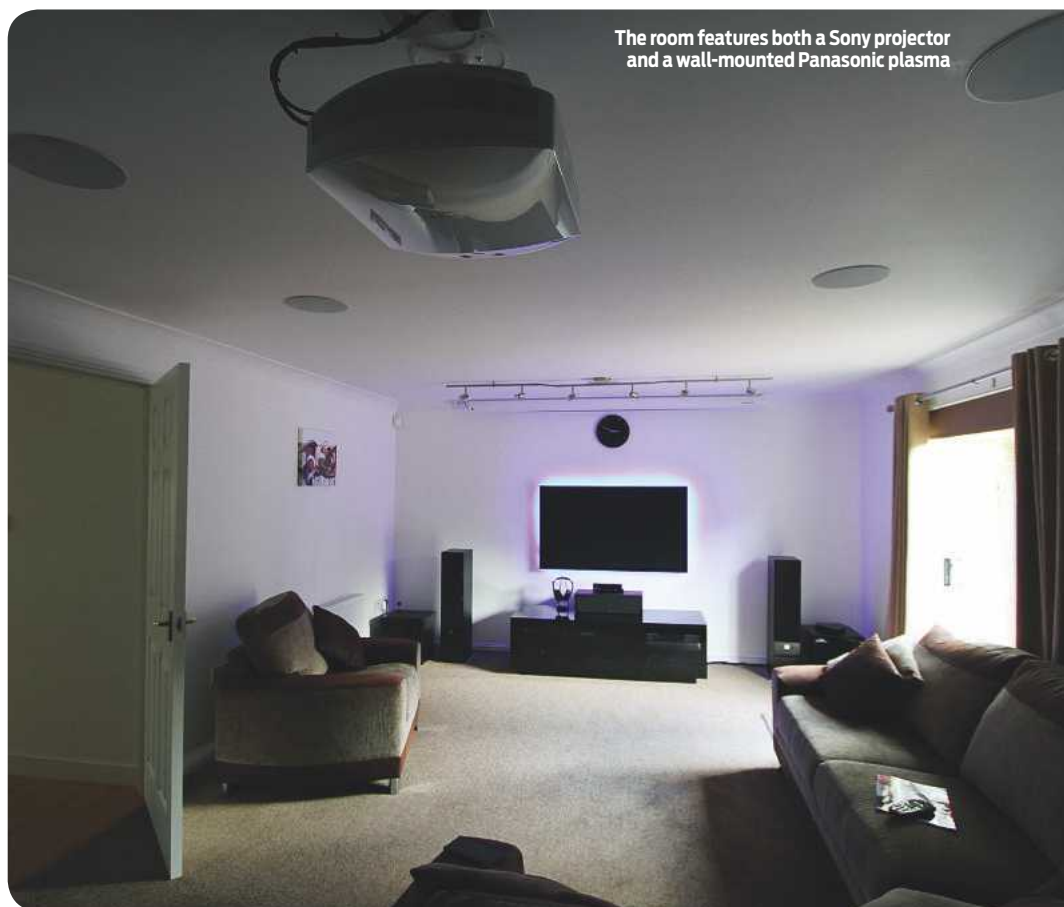
I have both a flatscreen and projector. The TV is a 55in Panasonic plasma (the VT65), which is wall-mounted. The projector is a Sony



VPL-HW40ES. This fires at my 106in Cyber Grandview screen, which drops down in front of the TV.

The speakers are all from DALI. I have Zensor 7 floorstanders for front left/right, the Ikon Vokal Mk2 centre, Zensor 1 surrounds and four E-60 in-ceiling speakers. The subwoofer is a Velodyne CHT-10Q.

Feeding all that is my new Pioneer SC-LX58 AV receiver. Sitting in my BDI Mirage stand is an Oppo BDP-95 NuForce Edition Blu-ray player, a 2TB Sky+HD box, and Sony PlayStation 4 and Microsoft Xbox One consoles. I also have some Astro A50 gaming headphones.



The room features both a Sony projector and a wall-mounted Panasonic plasma

We love the bias lighting around the TV – how did you achieve it?

I used a length of LED cabling with a control box, and I also then have a remote control that allows me to change the colour to suit what I'm watching.

So, you have a four height-speaker array for Dolby Atmos. Did anyone help with fitting the ceiling speakers/drop-down screen? How long did it take?

I actually bought the hardware from Dan at The Movie Rooms in Edinburgh (www.themovierooms.co.uk) and he arranged the installation. The actual install was done by Anderson Installations (www.andersoninstallation.co.uk), who I will say were excellent. The whole project was done in two stages. The Atmos fitout was first, which took a day, and the drop-down screen, etc, took another day a couple of months later.

What's the cinema's performance like? What do you love about it and do you have anything you'd change?

It's simply staggeringly good. I am over the moon with it. The new amplifier is such a huge step up over my previous one (Pioneer VSX-2021). It's actually a better picture and sound experience than my local cinema! In all honesty, for my budget I don't think there is anything I would have changed.

Roughly how much have you spent on it?

Hmm... probably around the £10,000 mark.

What's next on your equipment wish-list?

Next is an Intel NUC media PC and a Logitech Harmony handset. After that it'll be another subwoofer to join the Velodyne.

'I'm really impressed by Dolby Atmos and use the upscaling mode for all my Blu-ray movies now'

What's your favourite bit of kit?

That's a difficult one. I think I would have to say the Panasonic VT screen as the picture quality just blows me away every time I put on a BD.

What do friends and family think of the system?

It's funny, as when I try to explain the system to them they don't really understand – until they hear it and then they love it...

What discs do you use when you want to show it off?

The *Gravity: Diamond Luxe* version (with the Atmos mix) is incredible! I held back

from watching the film at all until I got the Atmos version and I can honestly say it's one of the best films I've seen. Then, for pure picture quality it has to be Marvel's *Guardians of the Galaxy* or Pixar's *Finding Nemo* – they are always showstoppers!

What are your favourite Blu-rays?

Actually I'm quite excited as one of my favourite films ever – *Vanilla Sky* – is due for Blu-ray release soon, but I have a wide range of tastes when it comes to films so I'll watch anything from *Ben-Hur* to *Batman*.

What's your opinion of Dolby Atmos so far?

I'm really impressed by it and I use the upscaling mode for all my discs now as it really does add something extra to the experience. I think the best way to explain Atmos is that when you watch a film there is sound *everywhere*! My only gripe is the lack of Blu-rays still available with Atmos encodes!

Are you excited by 4K/Ultra HD?

Yes, in much the same way I was excited about Laserdisc, DVD, HD DVD and Blu-ray.

I don't think I'll be an early adopter but then I always say that. The only problem is convincing my wife that I need to buy another *Star Wars* box set.

Actually, I would like to say a huge thanks to my wife Denise for being supportive and – over all – tolerant! ■



Mike's dedicated AV furniture provides space for his BD deck, games consoles, Sky box and Pioneer amp – and a stand for his DALI centre speaker

SHARE YOUR SYSTEM IN THE MAG!

IF YOU WANT TO BE THE NEXT 'AV-HOLIC' IN HCC, you'll need to send us some hi-res images of your cinema room. The better-quality image we get, the better your room will look. So follow these simple steps:

1. Go big. Set your camera to take images at the largest possible size, and at the highest resolution. Don't worry about cropping or resizing – we will make them print-ready.
2. Get in focus. Make sure your photos are as sharp and clear as possible. If you have one, use a tripod, or place your camera on a flat, steady surface and take pictures on a delay. The sharper they are, the bigger we can print them.
3. Let some light in. While we tend to watch movies in the dark, our

cinema systems look their best when they are lit. If you can shoot with natural daylight, do so. If your room doesn't get a lot of light (a garage conversion, for instance) then switch on whatever lights are fitted. Avoid using flash wherever possible.

4. Be thorough. Send photos of as much of the room as possible. Images of both the front and back of the room, the kit rack, speakers, seating, disc shelf, movie poster art... The more the merrier.

5. Don't be shy. We'd love a picture of yourself – unless you want to remain anonymous...

6. Show us more. Got pictures of your room before it was a cinema? Or snaps of work being done? We love to see these, too.

Email your selection of images to letters@homecinemachoice.com with the subject heading 'AV-Holic'. Provide us with some information about your setup and we'll then be back in touch.

...And blag an AudioQuest Pearl HDMI cable!

The kind people at cable king AudioQuest are giving away a two-metre Pearl HDMI cable to our AV-Holic each month. The Pearl, which retails for £34, uses long-grain copper conductors and a foamed polyethylene insulation for a robust construction. All AudioQuest HDMI cables up to 10 metres meet or exceed the 10.2Gbps maximum data rate for HDMI and are approved High Speed with Ethernet cables.





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Steve May, Home Cinema Choice, December 2014



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PLAYBACK

→ **SOFTWARE HIGHLIGHTS** **AMERICAN SNIPER** Clint Eastwood's latest aims high with its Dolby Atmos sonics **KINGSMAN: THE SECRET SERVICE** Comic book spy pastiche is no laughing matter on BD **WHIPLASH** Award-winner bangs the drum for lossless audio **IT FOLLOWS** Horror stalks your home cinema **THE WIRE** HBO's addictive crime drama makes its hi-def debut **AND MUCH MORE!**

Re-masterpiece

Goodfellas: 25th Anniversary Edition → Warner Bros. → All-region BD

Martin Scorsese's acclaimed gangster movie celebrates its 25th anniversary with a brand-new 4K restoration on Blu-ray. Has the best just got even better? There's only one way to find out for sure, and that's by turning to p101, ya mook!

HCC RATINGS KEY...

Outstanding	★★★★★
Above average	★★★★☆
Acceptable	★★★☆☆
Disappointing	★★☆☆☆
Dire	★☆☆☆☆



Eastwood feels the call of duty

Yet Gulf war drama from veteran director serves up patriotic tale curiously short of spirit

→ AMERICAN SNIPER

The title may recall memories of direct-to-video thrillers gone by, but there's nothing B-movie about this adaptation of the best-selling biography by US Navy SEAL Chris Kyle. Directed by Clint Eastwood and starring Hollywood fave Bradley Cooper, it's a handsomely-staged A-list endeavour. Unfortunately, it's immensely serious and rather lacking in thrills.

Cooper plays Kyle, a renowned, celebrated sniper who completed four tours in post-invasion Iraq and claimed a military record 160 kills. During the movie's 132-minute runtime, we see his legend grow as he goes about his lethal business, struggles to eradicate a rival Syrian marksman, returns home between tours to be with his wife (Sienna Miller) and young children, and eventually leaves the SEALs and try to re-adjust to civilian life.

American Sniper stirred up a minor controversy upon release, with some commentators claiming that it glorifies Kyle as a dedicated patriot, enraged by the atrocities of 9/11 and dealing out justice to murderous Iraqis – as opposed to a government-sponsored mass killer. It all depends on your point of view.

More of a concern is that Eastwood peppers the narrative with things we've seen before in countless other war flicks, be it the 'get on the floor and give me twenty' military training camp sequences, the SEALs trying to find love in a local bar, or Kyle winning his girlfriend a teddy bear at a funfair. The latter may well have actually happened, but it reeks of by-the-numbers writing.



HCC VERDICT

American Sniper
→ Warner Bros. → All-Region BD
→ £25 approx

WE SAY: The movie lacks verve, but the sharp-shootin' AV quality of this Blu-ray lightens the mood

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★

Picture: *American Sniper* is certainly a flag-bearer for the Blu-ray generation, arriving with a 2.40:1 transfer that searches out details amidst the war debris and impresses with its impeccable sharpness. An early sequence where a young Kyle goes hunting in the sunlit Texas countryside features finely rendered blades of grass waving in the breeze; a dead deer looks real enough to eat.

The colour palette majors on grey, brown and sun yellows during the Iraq scenes, but elsewhere Sienna Miller's blue dress pops off the screen. It's a dynamic image too, with bright highlights and silky blacks, which do on occasion seem somewhat uniform, but that's a minor niggle.

Audio: This movie was released in cinemas with a Dolby Atmos mix, and Warner Bros. has carried this over for this Blu-ray outing (non-Atmos setups receive the TrueHD 7.1 track). And as an audio experience, it's pretty darn good.

It's at its most involving during the sniper sequences, where LFE throbs are employed to denote the tension as Kyle's finger pressures the trigger, and bullets trace across the soundstage with tight, percussive thumps. Placement of these lethal objects is immaculate. During the scenes back on home soil, the mix is less adventurous (and the plinky piano score begins to grate), but the soundfield is put to good use.

Extras: There are two 30-minute features here, both worth a watch – *The Journey of American Sniper* (which features an annoying narrator) and *The Making of American Sniper* (which doesn't).

Inherent Vice

Warner Bros. Home Entertainment
All-region BD → £25 approx



Misleadingly marketed as a goofy comedy, Paul Thomas Anderson's seventh film turns out to be a self-indulgent

detective story that obfuscates traditional concerns such as narrative and logic in a miasma of cannabis smoke. Impenetrable as the film's plot may be, the outlandish cast of characters and weird situations are enough to make the journey an oddly enjoyable one. Meanwhile, the Blu-ray's 1.85:1 1080p encode works wonders with the film's dreamy, sun-drenched visuals. Disappointingly, the only extras are four promo videos that do nothing to explain what the heck you've just watched...



Selma

Pathé/Twentieth Century Fox
Region B BD → £25 approx



Films about American civil rights leader Martin Luther King, Jr. are surprisingly thin on the ground – which only

serves to make this impassioned account of the events that led to the passing of the 1965 Voting Rights act all the more welcome. While some of the storytelling choices are fairly clunky, *Selma* ultimately succeeds on the strengths of its cast – particularly British actor David Oyelowo's central performance. In addition to the accurately rendered 2.40:1 HD visuals and crisp DTS-HD MA 5.1 sonics, the Blu-ray packs in plenty of extras including two chat-tracks and 12 deleted scenes.



Wild Tales

Artificial Eye → Region B BD
£25 approx



This thrillingly inventive Argentinian anthology certainly lives up to its title. Across its six perfectly conceived

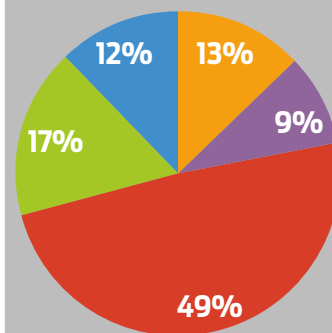
short stories, *Wild Tales* serves up a delicious mix of shocks and laughter as it follows various ordinary people pushed beyond the limits of their self-control and self-respect. This devilish black comedy crashes onto Blu-ray with a colourful AVC 2.40:1 1080p encode that is every bit as sharp as the film's humour, accompanied by a boisterous DTS-HD MA 5.1 mix. Extras are limited to a 25-minute *Making of...* featurette, a six-minute chat with the director and the theatrical trailer.



WE ASKED...

How many Blu-rays and DVDs do you own?

0-50 51-100
101-500 501-1,000
I've lost count!



Results from www.homecinemachoice.com
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Drumming up a superb soundtrack

Award-winning film makes a strong impression on Blu-ray with its awesome audio

→ WHIPLASH

Ambitious young drummer Andrew Nayman (Miles Teller) thinks he's finally on the path to greatness when he's invited to join the top jazz ensemble at the elite music conservatory he attends. But in order to stay there, Andrew will have to prove himself to the band's ruthless instructor Terrence Fletcher (J.K. Simmons), a man who will stop at nothing when it comes to pushing his students to the limit...

Few first-time filmmakers have made quite as strong an impression as writer-director Damien Chazelle did last year with this musical drama-cum-psychological thriller exploring the relationship between student and teacher. Breathlessly paced and almost unbearably intense, this whip-smart movie is pushed up to another level by Simmons's unforgettable performance as the brutal teacher who bellows out criticisms at his students in a way that would even put the fear of God into *Full Metal Jacket*'s Gunnery Sergeant Hartman.

Picture: Shot digitally using Arri Alexa cameras, *Whiplash* arrives on Blu-ray with an AVC 2.40:1 1080p encode that excels in reproducing fine details, be it close-ups of character's faces or beads of sweat and blood resting on the top of a cymbal. Black levels are also pretty good, although there is some noticeable crush on show – presumably due to the same colour grading that was undertaken to push oranges and yellows to the fore in the palette, giving the entire film a deliberately warmer aesthetic.

Audio: It shouldn't really come as much of a surprise to learn that *Whiplash* arrives on Blu-ray with a truly wonderful DTS-HD Master Audio 5.1 mix.



While dialogue and ambience are both expertly handled, the real success here is the music that forms the film's backbone. Every instrument can be cleanly picked out during each performance, with the overall sound of the band swelling up around you with a depth and robustness that can't help but impress. Staggeringly good sonics.

Extras: The Blu-ray offers up a fairly modest but worthwhile collection of bonus features.

Writer-director Chazelle is joined by J.K. Simmons for an insightful audio commentary that sees the former offering up plenty of technical details, while the latter provides the fun. And well worth a look is *Timekeepers*, a 43-minute doc talking to a number of famous drummers about their work.

Also on offer are a single deleted scene (with optional commentary), the original *Whiplash* short film (with an optional commentary), a short Q&A with the director and two stars, and the trailer.



HCC VERDICT

Whiplash

→ Sony Pictures → Region B BD
→ £25 approx

WE SAY: The lossless soundtrack's talent with music ensures that this Blu-ray is a star performer

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★

Spy pastiche left us shaken *and* stirred



Laced with brutal set-pieces, Matthew Vaughn's action-comedy is tailor-made to impress on Blu-ray



DEMO SCREEN...

Kingsman: The Secret Service

Time code: 020.42 – 022.52



Manners maketh the man: Harry and Eggsy's quiet drink is interrupted by some thugs looking to make trouble. Locking the doors to the pub, Harry decides to show them the error of their ways...



Nothing but the tooth: The stunning 1080p encode gets the best out of Vaughn's virtuoso camerawork, tracking one attacker's tooth as it flies through the air. And then it's back to the action...



Absolutely shocking: Like any self-respecting spy, Harry has plenty of gadgets and gizmos up his sleeve – including a wristband that fizzies with electricity while restraining a bottle-wielding thug.



Under my umbrella-ella-ella: Gunshots ring out across the 7.1 soundstage but are no match for Harry's high-tech armoured umbrella, which can also deliver a knockout blow of its own.

→ KINGSMAN: THE SECRET SERVICE

When a young agent is killed in action, his superior Harry Hart (Colin Firth) visits his widow and young son to offer his condolences and give them a number to call if they ever need a favour. Years later, the boy, now a young man called Eggsy (Taron Egerton) does just that after he's arrested by the police following a spot of joy riding. Freeing him from jail, Harry takes Eggsy under his wing and offers him a chance to live up to his potential by competing for a vacant position in a top-secret team of super spies: the Kingsmen.

Meanwhile, billionaire tech genius Richmond Valentine (Samuel L. Jackson) has been growing increasingly concerned about the state of the world. To this end, he's been kidnapping global leaders and cooking up a nefarious plot involving a new SIM card that he plans on giving away for free...

That's the premise of this British-produced flick based on the comic book written by Mark (Kick-Ass) Miller and illustrated by Dave (Watchmen) Gibbons. It's directed by Matthew Vaughn, who also helmed the film adaptation of Kick-Ass.

'[Spy films today] are a little too serious for my tastes,' reveals Hart at one point. 'But the old ones... Marvellous. Give me a far-fetched theatrical plot any day'. It's a credo that Vaughn and everybody else involved in the making of *Kingsman: The Secret Service* obviously stuck to as well. This is a big, silly, ebullient love letter to the spy genre featuring all of the tropes you'd hope for, from guns and gadgets to double-crosses and a menacing hench-woman with blades for feet. Even Harry Palmer himself, Michael Caine, is on hand playing Colin Firth's secret agent boss.

But amongst all of the nods and winks to other spy films, *Kingsman: The Secret Service* layers on a ridiculous amount of violence and gore. It never shies away from showing a limb being severed or a head exploding. Cartoonish in its execution, it's an Eggsy-style poke in the eye to the stiff-upper-lip approach to filmmaking that typified the 'gentlemen spy' genre during its heyday. It's just a shame that the filmmakers didn't quite know when and where to pull their punches, ending the film with a riff on the old Bond codas that goes that one step too far and leaves a bitter taste in the mouth.

But that's a minor complaint. For the most part *Kingsman: The Secret Service* is a refreshing subversion of the genre that delivers exuberant action scenes alongside laugh-out-loud gags, plus a handful of twists that (for a change) aren't signposted and will definitely take most viewers by surprise.

Roll on the inevitable sequel...

Picture: *Kingsman: The Secret Service* delivers plenty of visual thrills with its striking AVC-encoded 2.40:1 Full HD imagery. Depth, dimensionality and textual nuance clearly benefit from the



Looks like someone has mastered the art of the headshot...

crisp delineation of the Blu-ray encode and the amount of intricately resolved detailing visible in every shot (the sole downside to this visual acuity being the way that it draws attention to some of the film's rather less impressive CG effects).

The film's comic book-style aesthetic is packed with bold primary colours that serve to give the imagery an eye-popping vibrancy, while contrast and brightness look absolutely spot-on. Likewise, black levels are supremely well handled, appearing deep and rich, while still boasting plenty of shadow detail.

Audio: While it may be a step-down from the Dolby Atmos mix that accompanied *Kingsman: The Secret Service* in cinemas, the DTS-HD MA 7.1 soundtrack included on this BD provides a dynamic and immersive aural experience.

The expansive soundfield that has been created bristles with directional effects, while the low-end is deep enough to satisfy the most demanding bass-hedz. Particularly impressive is the clarity of the mix; no matter how chaotic things get (such as the church fight in Chapter 26), sonic detailing remains precise at all times.

On top of this, music and dialogue are both flawlessly rendered, with the former used to add yet more energy to the mix, while the latter is prioritised to lift it out of the acoustic maelstrom.

Extras: In lieu of an audio commentary, the most substantial bonus feature on offer is *Kingsman: The Secret Service Revealed*. Split into six sections (Panel to Screen: The Education of a 21st Century Spy; Heroes and Rogues; Style All His Own; Tools of the Trade; Breathtakingly Brutal; and Culture Clash: The Comic Book Origins of the Secret Service) this

92-minute doc talks to most of the main cast and crew, and covers pretty much everything you could want to know about the making of the film – from the original comic book to costumes, casting to stunts.

Next up comes a trio of photo galleries: *Behind the Scenes* (51 images); *Sets* (24 images); and *Props* (39 images). As with all Fox discs, these can be flicked through manually or set to roll automatically. Finishing things off is the film's trailer.



Kingsman... is the fourth collaboration between director Matthew Vaughn and screenwriter Jane Goldman



Girls and guns: key ingredients in any good spy movie?



HCC VERDICT

Kingsman: The Secret Service

→ Twentieth Century Fox
→ Region B BD → £25 approx
WE SAY: Excellent AV performance and a superb in-depth doc gives this film a licence to thrill on Blu-ray

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★

ARCADE ACTION

Bigscreen home entertainment isn't just about movies anymore. Check out these two videogames vying for time on your home cinema system...

The Witcher III: Wild Hunt

Namco Bandai → Xbox One/PS4/PC → £50 approx



The king is dead, long live the king! It's taken five years, but with the release of this third game based on the series of fantasy stories by Polish author Andrzej Sapkowski, *The Elder Scrolls V: Skyrim* has lost its crown as the king of open-world action RPGs.

Concluding the story of monster-hunter Geralt, *The Witcher III...* finds the Northern Kingdoms in turmoil as rival political factions use any opportunity they can to fight one another, while an otherworldly army known as the Wild Hunt embarks on a rampage of death and destruction. It's all pretty grim and gloomy stuff. But just like *Game of Thrones*, it's used as a way of depicting the cost of the violence being perpetrated and the decisions being made.

As well as telling a wonderful story, *The Witcher III...* also delivers a thrilling gaming experience. Developer CD Projekt RED has continued to tweak the game mechanics, resulting in improved combat, an expanded potions section and a seemingly infinite degree of character customisation. Heck, the sheer scale of the game and number of quests (and sub-quests) ensure well over 100 hours of play. Meanwhile, the new REDengine 3 means that the gameworld looks utterly spectacular; conjuring up breathtaking HD vistas that will give you pause for thought amid all of the violence and bloodshed. Simply magical.



Project CARS

Namco Bandai → Xbox One/PS4/PC → £50 approx



Lining up on the grid alongside the likes of *Forza Motorsport* and *Gran Turismo*, *Project CARS* sets out to deliver a realistic driving simulation that takes in everything from an SMS Kart 125cc to the 245mph W Motors Lykan Hypersport that recently wowed petrol-hedz with its appearance in *Fast & Furious 7*.



Unlike those other games, however, *Project CARS* doesn't restrict access to its myriad cars and tracks, forcing gamers to unlock them as they play. Instead, every car is available from the start, waiting for you to take them for a spin. Nor are you expected to win

upgrades that will allow you to improve the vehicles. Instead, in true racing simulation style, the focus is on tweaking the existing setups of each vehicle to find the one that best suits each of the 110 different courses on offer.

By stripping away all of the unnecessary fat that has built up around the genre over the years, this stunning-looking game lives or dies purely on its racing. And for the most part it really delivers, providing a white-knuckle driving experience with an impressive physics engine and handling model that punishes you for the tiniest mistake. Rather less impressive (but often unintentionally funny) are some A.I. bugs that really should have been ironed out before release – thankfully software patches to fix them have been promised by the developer.



Tokyo Tribe

Eureka! Entertainment → Region B BD
£22 approx



Having previously given the world a four-hour epic about romance, religion and upskirt photography (2008's *Love Exposure*), Japanese filmmaker Sion Sono has now cooked up

the world's first kung fu-rap-musical. The result is every bit as bonkers and baffling as you'd imagine – but that's no bad thing in our book, with the lurid visuals and dynamic sonics leading to an enjoyable AV experience on Blu-ray. A candid 64-minute *Making of...* video and four deleted scenes are also included.



The Happiness of the Katakuris

Arrow Video → Region A/B BD & R1/2 DVD → £18 approx



Prolific Japanese filmmaker Takashi Miike left Western fans of his 1999 breakout horror *Audition* baffled with this 2001 remake of the South Korean film *The Quiet Family*. While the

central plot remains the same (a family running a remote guest house struggles to deal with the fact that their customers keep dying), Miike recreates it as a musical-comedy with added claymation and zombies. Compared to the original DVD release, this HD update is a revelation, bringing clarity and sharpness to the visuals – and it's also packed with fascinating extras.



The Tale of the Princess Kaguya

StudioCanal → Region B BD & R2 DVD
£25 approx



If this really does turn out to be Studio Ghibli co-founder Isao Takahata's final film, then he's gone out on a high. Based on the Japanese folk tale *The Tale of the Bamboo Cutter*, this

charming animation utilises a mix of watercolours and raw line drawings that gives it a unique aesthetic. Thankfully, this Blu-ray's 1.85:1 1080p encode captures it perfectly, while the DTS-HD MA 5.1 audio (Japanese or English) is suitably elegiac. Extras are limited to a press conference, trailers and TV spots.





Hugh did whatever it took to make sure people sat through all of his holiday snaps

In pursuit of a modern horror hit

This celebrated supernatural thriller looks back to the past for the inspiration to its greatness

→ IT FOLLOWS

The idea of being relentlessly stalked by an unstoppable force is one of the most familiar notions in the horror genre. But rarely has the concept been used as efficiently or as effectively as in writer-director David Robert Mitchell's minimalist supernatural chiller *It Follows*.

A teenage girl flees her home and drives to the beach, only to be brutally murdered by the time the sun rises... Meanwhile, in Detroit, college student Jay (Maika Monroe) is drugged by Hugh, the boy she has just had sex with. She awakens tied to a wheelchair, and Hugh proceeds to tell her that from now on she'll be stalked by a supernatural entity that can take the form of anyone – and the only way she can get rid of it is to have sex with somebody else. But she must still be careful, as when it kills that person, the curse will revert back to her. Blimey, what's a girl to do?

David Robert Mitchell has admitted to being a fan of the horror genre and it certainly shows. However, while *It Follows* is clearly indebted to the likes of John Carpenter's *Halloween* in terms of its setting and visual style, it's no mere copy. Instead, Mitchell's film acknowledges its forebears while striking out in bold new directions.

Layered with subtext and anchored by excellent performances, this terrifying and intelligent shocker ranks among the best horrors of the past decade. As far as being a modern fright classic goes, the only thing missing is a massively inferior direct-to-DVD sequel. But surely that can't be too far off...



Picture: Shot on Arri Alexa Plus and Red Epic cameras, *It Follows* boasts a very crisp look, something that has been carried over to the Blu-ray's 2.40:1-framed 1080p encode. While the sharpness and clarity of the image impresses throughout, it really

pays dividends with the detailing in close-ups such as the overhead shot of Jay's hand as she plays with a plant (Chapter 3).

The film's natural colour scheme is also kept intact, helping to highlight bold splashes of colour – particularly Jay's red nail polish. And, unlike some other digital productions, the black levels here are rock solid, shrouding the action in deep shadows that threaten to unleash yet more horror on the screen.

Audio: Outside of the sound of a window being broken off-screen (Chapter 5) and a few gunshots (Chapter 7), the film's sound design isn't particularly concerned with more traditional dynamic effects. Instead, the real muscle in the mix is the synth score by composer Disasterpiece (aka Rich Vreeland). Serving as both a homage to classic '80s horror films and an experiment in electronic music, it's as much a part of the film as the dialogue, occupying the entire soundstage with its relentless noises.

Extras: Sadly, there's no input from writer-director David Robert Mitchell. Instead we have to make do with a repetitive chat-track by critic Danny Leigh and academic Mark Jancovich that may have benefitted from a little more preparation. There's also a short interview with Disasterpiece, a gallery of poster art and the trailer.



Maika Monroe previously starred in last year's retro genre homage *The Guest*



HCC VERDICT

It Follows

→ Icon Home Entertainment
→ Region B BD → £18 approx

WE SAY: Scarily good picture and sound make it easy to overlook this Blu-ray's lacklustre extras

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★☆☆☆

Overall ★★★★★



Woop, Woop, that's the sound of the police...



A wider look at inner city crime

20-disc BD boxset reformats David Simon's acclaimed TV series. Should fans be concerned?



→ THE WIRE: THE COMPLETE SERIES

Hailed today as one of the greatest shows in the history of TV, David Simon's *The Wire* rewrote the rule book for serialised crime drama over the course of its five seasons. From its debut on HBO in 2002, the show eschewed the usual formula of individual episodic narratives in its favour of following a single Baltimore police investigation aimed at bringing down a major drug dealing organisation.

While the four subsequent seasons continued to explore the impact of the narcotics trade on the city, each also expanded the scope of the show to explore other city institutions such as the school system, local government and the media. The result is one of the most complex and satisfying pieces of TV drama ever mounted; a sensational, multi-layered indictment of the war on crime and the way it continues to impact society – and thanks to this it remains as relevant and 'real' today as it did a decade ago.

Picture: The main talking point with this Blu-ray release is the fact that HBO has made the decision to modify the show from its original 1.33:1 aspect ratio to 1.78:1 widescreen.

Ordinarily, this is the sort of thing that would drive us absolutely mad. However, in this instance show creator David Simon and producer Nina Noble ensured that they were

involved in the process, providing copious notes on how best to present the material and any changes that would have to be made. Between this and the fact that the first couple of seasons were shot in a way to 'protect' future 1.78:1 presentations, first-time viewers would be hard-pushed to know that this wasn't how the series has always looked.

For more information on the extensive work undertaken to re-frame the series, we recommend reading David Simon's in-depth blog posting about it (www.davidsimon.com/the-wire-hd-with-videos).

So, ignoring the framing issue, how does *The Wire* look on Blu-ray? In a word: wonderful. Shot on 35mm, the AVC 1080p encodes deliver strong detail, excellent flesh tones, authentic grain structure, stable black levels and no obvious digital tinkering.

Audio: The original DD 5.1 DVD soundtracks have been given a DTS-HD MA 5.1 upgrade for this Blu-ray release. Naturally, most of the action is contained in the front of the soundstage, but atmospheric effects in the surround channels help to bring the busier locations to life.

Dialogue is also clear and intelligible, despite the thick accents and frequent mumbling.

Extras: The only new extra is the 85-minute *The Wire Reunion*, a Q&A recorded in 2014. Returning bonus features include cast and crew commentaries on selected episodes, three *Making of...* docs and a trio of prequel shorts.



HCC VERDICT

The Wire: The Complete Series

→ HBO Home Entertainment

→ All-region BD → £80 approx

WE SAY: Don't worry about the new aspect ratio – this boxset deserves a place in every Blu-ray collection

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★



The Interview

Sony Pictures → All-region BD
£25 approx



Following the death threats and the Sony hack, this is what it all boils down to – an intermittently funny

comedy that spends as much time dealing with things being inserted into bodily orifices as it does poking fun at North Korean dictator Kim Jong-un. Still, the good news for fans of Seth Rogen and Evan Goldberg's brand of humour is that not only does this UK Blu-ray feature loads of extras and a rambunctious 5.1 DTS-HD MA soundtrack, it packs the corrected hi-def transfer and doesn't suffer from the intense black crush that marred the US release.



Stretch

Universal Pictures → All-region BD
£20 approx



Patrick Wilson plays a down-on-his-luck limo driver whose latest client (Chris Pine) just happens to be wanted

by the FBI and involved with some pretty dangerous people. Similar to director Joe Carnahan's earlier *Smokin' Aces*, *Stretch* feels more like a string of set-pieces and outlandish characters than a complete narrative, but for some reason it works much better this time around. It's also well served by this Blu-ray's glossy AVC 2.40:1 Full HD visuals and powerful DTS-HD MA 5.1 sonics. What a shame that Universal spoils things by failing to provide any extras whatsoever.



Suits: Season Four

Universal Pictures → All-region BD
£30 approx



The oddball US legal drama takes a slightly more serious turn in this fourth season. The main story arc sees Harvey (Gabriel Macht) and Mike (Patrick J. Adams) fighting for opposite sides in a corporate takeover, and when the dust finally clears and things look like getting back to normal, Mike's big secret comes back to haunt him yet again. The set splits the 16 episodes across four hi-def platters, and the 1.78:1-framed 1080p imagery is a major step-up from Dave's UK broadcasts of the show. Extras include eight deleted scenes, 11 amusing webisodes and a gag reel.



The Voices

Arrow Films → Region B BD
£20 approx



Ryan Reynolds stars in this black comedy about a worker at a small town bathtub factory whose quest to find love is constantly hampered by his pets. What makes *The Voices* different from the usual rom-com is that Reynolds' anti-hero Jerry actually hears his pets urging him to commit murder. The upshot is a quirky and stylish film that manages to unearth some touching moments amid all of the ghoulish humour. This Blu-ray sweetens the deal with bold 2.40:1 1080p visuals, immersive DTS-HD MA 5.1 audio (check out Chapter 10's cacophony of voices) and a fine array of bonus features.



Forget good, these are *Greatfellas*

As far back as I can remember, I always wanted a new restoration of this crime classic

→ GOODFELLAS: 25TH ANNIVERSARY

Based on Nicholas Pileggi's best-selling nonfiction book *Wiseguy*, Martin Scorsese's kinetic 1990 crime epic spans three decades as it charts the rise and fall of three gangsters – Henry Hill (Ray Liotta), Jimmy 'The Gent' Conway (Robert De Niro) and Tommy DeVito (Joe Pesci).

Regularly hailed as the director's best film (and one of the best films of all time), *Goodfellas* ranks alongside *The Godfather* in the pantheon of modern crime films. An electrifying mix of humour and violence, the film paints an intoxicating, exciting picture of mob life, before pulling the rug out from under your feet and showing the horrors that dominate these peoples' lives. It would be criminal if you haven't seen it.

Picture: For this second release of *Goodfellas* on Blu-ray, Warner Bros. has utilised a new 4K scan of the original camera negative, with colour correction and other work supervised by Scorsese. While the differences are hardly night-and-day, the resulting AVC-encoded 1.78:1 Full HD image is superior to its predecessor. Improvements can be seen in stability, colours and clarity, the latter helping to further resolve fine textures in the image.

Audio: While the original 2007 Blu-ray opted for a 'lossy' Dolby Digital 5.1 soundtrack, this new release gives the audio a DTS-HD Master Audio 5.1 upgrade. Considering the significant role that the sound design plays in the film (particularly Scorsese's use of music), the represents yet another tick in favour of this latest release over its predecessor.



Extras: New bonus features take the form of a 36-page photo book, a 'Letter from Martin Scorsese' and a new retrospective documentary featuring interviews with those involved with making the film, as well as other Scorsese collaborators (including Harvey Keitel and Leonardo DiCaprio).

Everything from the original Blu-ray release has been carried across, too. This takes the form of two audio commentaries (the first featuring input from various members of the cast and crew, the second recorded by the real Henry Hill and former FBI agent Edward McDonald); four additional *Making of...* featurettes (*Getting Made*, *Made Men*, *The Workaday Gangster* and *Paper is Cheaper than Film*); the 105-minute *Public Enemies: The Golden Age of the Gangster Film* documentary; four gang-related archival cartoons (*I Like Mountain Music*, *She Was an Acrobat's Daughter*, *Racketeer Rabbit* and *Bugs and Thugs*); and the trailer.



HCC VERDICT

Goodfellas: 25th Anniversary

→ Warner Bros. → All-region BD

→ £20 approx

WE SAY: The 4K restoration alone makes this the definitive edition of Scorsese's cinematic masterpiece

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★

Digging up the Marrow

Kaleidoscope → R2 DVD
£15 approx

Genre filmmaker Adam (*Hatchet*) Green both directs and stars as himself in this pseudo-documentary about a mysterious former cop (Ray Wise) who claims to have proof that monsters are real. Despite its neat setup and great performance from Wise, what emerges from the effort is a mix of *Nightbreed* and *The Blair Witch Project*, with few of the strengths of either. Bypassing Blu-ray in the UK, the film hits DVD with a modest anamorphic 1.78:1 transfer and effective DD5.1 soundtrack. While the commentary from the US disc is missing, we do still get the *Making of...* and five deleted scenes.



The Relic

Fabulous Films → Region B BD
£15 approx

A murderous monster runs amok in Chicago's Museum of Natural History in this fun 1997 creature-feature from director Peter Hyams. While this hi-def platter is sadly devoid of extra features, it fares much better with its AV prowess. *The Relic's* DTS-HD MA 5.1 mix packs plenty of room-rattling bass and although the HD master (licensed from Universal) is showing its age a little, there's none of the excessive DNR we expected to see. Indeed, the 1080p image does a surprisingly good job of rendering the film's notoriously dark visuals, pulling every last bit of detail it can find out of the gloom.



Stonehearst Asylum

Lionsgate → Region B BD
£23 approx

Edgar Allan Poe's short story *The System of Doctor Tarr & Professor Fether* serves as the basis for this period thriller in which a young doctor visits a remote mental asylum to continue his studies, only to learn that things aren't quite what they seem. Featuring a fine line in gallows humour and an impressive cast that includes Kate Beckinsale, Ben Kingsley and Michael Caine, this spirited slice of Gothic Victoriana has plenty to recommend it. The same can also be said of the Blu-ray's AVC 2.40:1 1080p encode and DTS-HD MA 5.1 audio. However, the only extra is a bland promo featurette.



The Woman in Black: Angel of Death

EntertainmentOne → Region B BD
£25 approx

This sequel to the 2012 Hammer smash finds Eel Marsh House being used to house a group of children evacuated from London during World War II. All of which means it isn't long before the titular apparition is up to her old tricks again. While it falls short of Susan Hill's original ghost story, there's more than enough spooky goings on here to keep fans happy, and the Blu-ray copes well with the film's dark photography and dishes out plenty of surround sound scares. Six short *Making of...* featurettes and a deleted scene are also included.



Elementary, my dear Watson...

This well-specified hi-def package should leave Hammer fans howling with delight

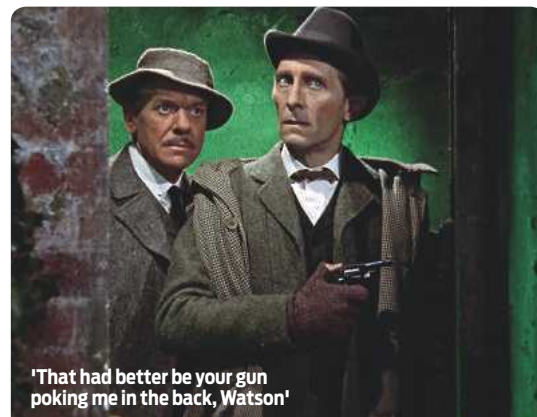
→ THE HOUND OF THE BASKERVILLES

During the late 1950s Hammer Film Productions reinvented itself as the UK's leading purveyor of cinematic shockers with *The Curse of Frankenstein* (1957) and *Dracula* (1958). But in 1959 the studio took a brief break from raiding Universal's catalogue of classic monsters to tackle one of Britain's best-loved literary icons – Sherlock Holmes.

Not that this meant it was leaving the world of Gothic horror behind. Indeed, in addition to rattling through most of the key plot points from Holmes's most famous adventure, Hammer's pacy 87-minute adaptation of *...Baskervilles* also finds time for a grisly prologue whose barely constrained sadism wouldn't feel out of place in one of its more lurid frighteners.

The film also gave Hammer the opportunity to reunite Peter Cushing and Christopher Lee on screen as Sherlock Holmes and Sir Henry Baskerville. Meanwhile André Morell (TV's original Quatermass) gives a far more serious (and effective) interpretation of Watson than the buffoonish version popularised by earlier Holmes flicks.

The only real downside to the whole endeavour is the titular Hound. Wisely kept off-screen until the film's climax, it looks less like a ferocious Hell beast and more an amiable Great Dane wearing a silly mask. Which, of course, is exactly what it is. Due to this surprising mis-step, *The Hound of the Baskervilles* will never be remembered as one of Hammer's finest. But even so, for our money it remains a thoroughly unique and enjoyable take on the iconic Sherlock Holmes adventure.



'That had better be your gun poking me in the back, Watson'

HCC VERDICT

The Hound of the Baskervilles

→ Arrow Video → Region B BD
→ £16 approx

WE SAY: Any Holmes or Hammer fan would have to be barking mad not to pick up this *Hound...* on Blu-ray

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★

Picture: Arrow's Blu-ray rendering of *The Hound of the Baskervilles* looks very similar to its series of Corman-Poe titles, which were of a similar vintage and also came from HD masters supplied by MGM. While grain is rather unrefined (just check out skies above the coach on journey to Baskerville Hall in Chapter 4) colours are robust and blacks are stable.

Audio: The disc's LPCM mono soundtrack delivers exactly what you'd expect from a film that will be turning 60 in a few years. So, while dynamic range is rather limited, the dialogue is cleanly rendered and James Bernard's score sounds magnificent.

Extras: A fascinating chat-track by Hammer experts Jonathan Rigby and Marcus Hearn; an isolated music and effects track; a half-hour *Making of...* featurette; a profile of André Morell; the 1985 doc *The Many Faces of Sherlock Holmes*; an archival interview with Christopher Lee; three extracts from the book read by Christopher Lee; the trailer; and a photo gallery.



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Steed and Peel's comic book capers

The leap into colour sees this popular 1960s TV series growing even more outlandish

→ THE AVENGERS: THE COMPLETE SERIES 5

Having graduated to shooting on 35mm last time out, British secret agents Steed (Patrick Macnee) and Emma Peel (Diana Rigg) made the leap to gaudy colour with this 1967 run.

Seemingly spurred on by the ability to create visuals that look like they're been ripped from the pages of a comic book, this run of 24 episodes takes *The Avengers* even further away from its roots and dives deep into the realm of outlandish fantasy with whimsical adventures involving shrink rays, killer pussycats and a second outing for those robotic killers, the Cybernauts!

What hasn't changed one iota is the chemistry at the heart of the show, with Macnee and Rigg clearly loving every moment on screen together, flirting and throwing groan-worthy zingers around with relish. Great stuff.

Picture: Thankfully, StudioCanal hasn't followed in the footsteps of Lionsgate's 2014 Blu-ray release and tried to cram all 24 episodes onto three discs. Spreading them across seven discs instead, this UK release gives them much more space to breath, with the various AVC 1.37:1 1080p encodes exhibiting excellent colour fidelity and detailing.

Audio: As with StudioCanal's earlier Series 4 Blu-ray boxset, this latest release opts for an authentic LPCM dual-mono mix. Clarity and pitch both seem accurate, with clean separation between dialogue, music and sound effects throughout.



Extras: Cementing its victory over the barebones US release, this UK Blu-ray boxset ports over the vast majority of the pre-existing DVD bonus features.

Across the seven discs you'll find filmed intros to selected episodes by series creator Brian Clemens; commentaries on four episodes; trimmed footage; a hilariously uncomfortable German interview with Macnee and Rigg; trivia and interview snippets created for the show's run on the defunct Granada+ channel; the German title sequence; photo galleries for every episode (plus an extra one for additional promotional material); reconstructions of three lost Series 1 episodes; four 'Mini Killers' short films starring Diana; an anniversary clip show; and more!

HCC VERDICT

The Avengers: The Complete Series 5

→ StudioCanal → Region B BD
→ £75 approx

WE SAY: Another must-own hi-def boxset for fans of this iconic series

Movie ★★★★★

Picture ★★★★★

Audio ★★★★★

Extras ★★★★★

Overall ★★★★★

Forty Guns

Eureka! The Masters of Cinema Series
Region B BD & R2 DVD → £23 approx



Sam Fuller brought sex to the Wild West with this bawdy 1957 B-movie starring Barbara Stanwyck as the 'High Ridin' Woman' who lords it over the town of Tombstone with her

gang of 40 hired guns, and Barry Sullivan as the stoic U.S. Marshall who falls for her charms. The film's stark black-and-white Cinemascope photography holds up very well on Blu-ray, with the disc's AVC-encoded 2.35:1 1080p transfer exhibiting excellent contrast and stability. An archival audio interview with Fuller that plays in place of a commentary, an appreciation of the film, a trailer and a 36-page booklet are also included.



Falstaff (Chimes at Midnight)

Mr. Bongo Films → All-region BD
£14 approx



A supporting character in three Shakespeare plays, the corpulent and boastful Falstaff takes the spotlight in this funny and poignant 1966 Spanish-Swiss co-production starring and directed by Orson Welles. Accurate image detailing and density are the highlights of this Blu-ray's 1080p restoration – however, print damage is still noticeable and the 1.66:1 aspect ratio shifts from shot-to-shot in some sequences (due to the use of alternate source material?). While the disc has zero extra features, it makes up for this in part with its budget pricing.



Sabotage

Network Distributing → Region B BD
£15 approx



It may not be one of Hitchcock's best-known films, but this 1936 thriller has plenty to admire – not least the pivotal sequence in which a ticking bomb is unwittingly carried through the streets of London. As with the label's previous trio of early Hitchcock Blu-rays (e.g. *The Lady Vanishes*), *Sabotage* has undergone some restoration for its hi-def debut and the 1.37:1 image holds up well, despite some unavoidable marks and scratches on the source material. And as with those earlier discs, extra features are limited – a video intro, an archive TV piece about the locations and a stills gallery.





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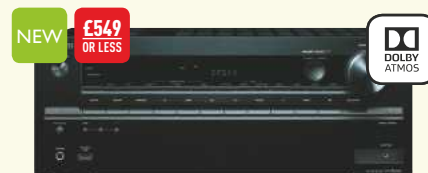
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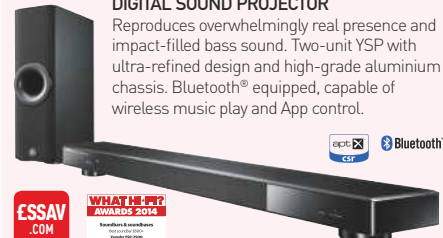


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TOP 10 TELEVISIONS

All prices are approx and may have changed

**Samsung UE65JS9500** → £6,000

★★★★★

It's not cheap, but that's the only real downer about Samsung's startling new range-topper. The super-bright 4K panel is ready for incoming HDR/UHD BD content and the revamped Smart system is a winner, too. *HCC #246*

**LG 65EC970V** → £6,000 ★★★★★

OLED tech married to a native 4K panel is certainly a winner – this screen routinely boggles with its black levels and detailing. But it has competition from Samsung's HDR sets. *HCC #248*

**Sony KD-65X9005B** → £3,600 ★★★★★

A groundbreaking set from last year. The 'Wedge' cabinet design affords room for a best-in-class audio performance from the side-mounted speakers, while imagery is hard to fault. *HCC #236*

**Samsung UE55HU7500** → £2,300 ★★★★★

Don't want the curved form or higher price of the HU8500 range? Then step down to this flat model. No One Connect box, but otherwise it's equally impressive in PQ terms. *HCC #239*

**Panasonic TX-42AS600** → £430 ★★★★★

An example of the value that can be found in modern-day Full HD sets. This 42-incher offers the best elements of Panasonic's Smart system, dynamic images and a great price. *HCC #240*

**LG 55EC930V** → £2,000 ★★★★★

OLED at an attainable price (well, almost), this 55-incher employs LG's WebOS platform and curved design. Full HD resolution, but the picture quality is stunning at times. *HCC #243*

**Linsar X24-DVD** → £300 ★★★★★

Many brands ignore screen sizes below 32in, so credit to Brit corp Linsar for releasing this 24in DVD-spinning Smart LED screen with punchy onboard speaker system. *HCC #244*

**Panasonic TX-55AX902** → £3,000 ★★★★★

Superior screen uniformity and crystal-clear detailing abound with Panasonic's pricey flagship LED screen, but motion processing isn't perfect. *HCC #244*

**Finlux 50F8075-T** → £600 ★★★★★

The best screen we've seen yet from the direct-retail brand, this 50-incher matches its affordability with a great user interface and solid, but not awe-inspiring, HD visuals. *HCC #234*

**Samsung UE40H6400** → £650 ★★★★★

This mid-market TV will probably sell like hotcakes. It ignores 4K in favour of Full HD, and combines a pleasing AV performance with plenty of useful Smart features. *HCC #236*

TECH INFO: TELEVISIONS



What? No plasma?: The TV market is now dominated by LED-lit LCD screens. Manufacture and sale of plasma display panels (PDPs), which previously came into play above 42in, has ceased, although you may still find some end-of-line stock. With LED comes newer technologies. 4K models with a native resolution of 3,840 x 2,160 should at least be on your audition list if you're thinking of a new display; curved models are also a consideration if you want to really impress the neighbours. OLED technology is championed by LG.



Active or Passive: At the beginning of the 3D era, most TVs featured the Active system that uses relatively expensive, powered 3D specs to deliver full-res images to each eye. Passive 3D TVs, which are now more common, have a filter over the screen and use non-powered specs with polarising filters. The glasses are cheap as chips, but the resolution of Full HD 3D is halved to 540 lines horizontally (but remains at 1,920 vertically). The same halving occurs with a 4K screen. Some brands offer both Passive and Active models, depending on the panel used. Glasses-free 3D, heralded by Toshiba's early ZL2 TV, hasn't caught on, but still may make headway.



Top 10 BLU-RAY PLAYERS

All prices are approx and may have changed

- 1**  **Oppo BDP-103D → £600 ★★★★★**
 Oppo's first deck for two years was worth waiting for. The universal BDP-103EU featured a class-leading build and all manner of bonus goodies, including twin HDMI inputs. AV performance was faultless, and the onscreen menus superb. This newer model, the BDP-103D, adds Darbee Visual Presence processing for you to play with. *HCC #228*
- 2**  **Pioneer BDP-LX88 → £1,300 ★★★★★**
 The Japanese corp returns to the disc-playing high-end with a universal deck that weighs more than your AVR and drips with user tweaks and processing features. Stonking performer. *HCC #246*
- 3**  **Oppo BDP-105D → £1,100 ★★★★★**
 This heavyweight deck builds upon the premium picture performance of the BDP-103D with a wealth of audiophile upgrades – if you're serious about music, check it out. *HCC #234*
- 4**  **Arcam FMJ UDP411 → £1,200 ★★★★★**
 Pristine visuals – including upscaled SD – and a classy sonic performance grant this Arcam instant appeal. The design and build is commensurate with the premium price tag. *HCC #244*
- 5**  **Sony BDP-S7200 → £220 ★★★★★**
 A Sony deck without the curious angular design, the BDP-S7200 offers SACD support, hi-res audio streaming and 4K upscaling that's worth investigation. Not too pricey, either. *HCC #239*
- 6**  **Panasonic DMP-BDT700 → £500 ★★★★★**
 Claiming THX-certified 4K upscaling and HDMI 2.0 60p passthrough, this mid-range deck from Panasonic is a good partner for a modern display. Great audio option, too. *HCC #237*
- 7**  **Samsung BD-J7500 → £170 ★★★★★**
 This well-priced spinner offers twin HDMI outputs and multichannel phono audio for flexible system hookup, an appealing design, Smart features and solid AV chops. *HCC #247*
- 8**  **LG BP645 → £100 ★★★★★**
 An affordable, likeable offering from LG. The BP645 claims Spotify compatibility and Wi-Fi-enabled headphone listening among its bonus features. Slim but lightweight design. *HCC #236*
- 9**  **Pioneer BDP-160 → £130 ★★★★★**
 The successor to the BDP-150 adds integrated Wi-Fi, making media file playback simpler. The Smart cupboard is still practically empty, but SACD support softens the blow. *HCC #227*
- 10**  **Toshiba BDX5500 → £120 ★★★★★**
 The key attraction of Toshiba's £120 player (aside from its 3D, Miracast, 4K scaling and DLNA features) is its small form factor and vertical alignment. Good for space-tight setups. *HCC #238*

TECH INFO: BLU-RAY PLAYERS

Matching your deck to your AV receiver: Blu-ray decks are designed to deliver top-notch images but Blu-ray is also about enjoying superior quality sound. When choosing a player, bear in mind the connectivity and decoding features of your AV receiver. If you're still using an older model that doesn't offer HDMI inputs, then you'll need a Blu-ray player with multichannel analogue audio outputs to enjoy decoded hi-res surround sound formats. Similarly, older but still HDMI-equipped receivers may not be able to cope with 3D video signals, in which case you'll need a deck with dual HDMI outputs – one channelling audio to your receiver amp, the other piping video direct to your TV.

What about the PlayStation?: Sony's console still represents an easy path to hi-def heaven. For a low-budget home cinema system, the £200 PS3 Slim (160GB) makes a decent choice – especially if you like playing games (in 3D, if you fancy it). Control via a joy pad is a pain, though, and the console runs more noisily than most BD spinners. The newer, more expensive PS4 is a much better gaming machine, but won't play CDs!



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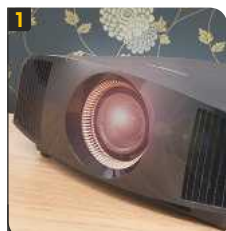
Edge of Tomorrow: This enjoyable, FX-packed Tom Cruise sci-fi scooped the Best Picture Quality gong in our Movie Awards. Shot on film for a realistic aesthetic, it transfers over to Blu-ray with a pristine 1080p image. The detailing is simply astonishing!

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TOP 10 PROJECTORS

All prices are approx
and may have changed**Sony VPL-VW300ES** → £5,800

★★★★★

Auditioning the newest, most affordable member of Sony's 4K range is a no-brainer. It loses a shade of brightness and the lens memory feature of its VPL-VW500ES stablemate, but retains the cinematic verve. Top of the class. HCC #243

**Epson EH-LS10000** → £6,000 ★★★★★

Debuting a laser light source (30,000 hours) and Epson's 4K enhancement processing, this large chassis model is a cinematic triumph. Essential audition for a dedicated room. HCC #247

**JVC DLA-X500R** → £5,000 ★★★★★

Armed with a more adept third generation of the brand's proprietary e-shift technology, the X500R continues JVC's winning ways – contrast rich, sharp and full of tweaks. HCC #232

**Epson EH-TW7200** → £1,900 ★★★★★

Priced to appeal to those unable to dabble in the £3,000 market, Epson's mid-ranger is a great purchase. No frame interpolation on offer, but colours, contrast and brightness impress. HCC #232

**JVC DLA-X700R** → £7,300 ★★★★★

A hefty chunk more expensive than the X500R, but with an improved contrast performance (and more flexible installation options) that will reward those who splash the cash. HCC #238

**Optoma HD50** → £1,000 ★★★★★

With a retweaked user interface that improves upon previous Optoma light-cannons, the 12V-trigger-toting HD50 is a brilliant budget buy. HCC #239

**BenQ W1070+** → £650 ★★★★★

An accomplished low-budget DLP model, the W1070+ offers ISF-certified calibration and a 12V trigger in conjunction with a sharp, bright, detailed performance. Bit of a bargain! HCC #240

**Philips Screeneo HDPI590** → £1,500 ★★★★★

Neatly designed, the Screeneo offers ultra-short throw projection thrills, albeit at 720p (and the DVB tuner is SD). Good speakers and networking skills complete a nice package. HCC #233

**Sony VPL-HW55ES** → £2,800 ★★★★★

Not one of Sony's 4K models, but this keenly priced Full HD projector delivers where it counts, with solid calibration options, simple setup and brilliant 2D visuals. No 12V trigger. HCC #230

**ViewSonic PLED-W800** → £500 ★★★★★

Portable (but not battery-powered) LED-lit PJ with 1,280 x 800 res. BDs look decent on a large screen, with nice colour punch, and it incorporates a useful media player. HCC #247

TECH INFO: PROJECTORS



Installation: Although projectors can be temporarily placed on a cupboard, stand or shelf situated at the rear of the room (use the adjustable feet on its base to level the image so that it aligns with the screen), a much better long-term solution is to mount it on your ceiling with an appropriate bracket. Projectors can be quite heavy, though, so it's important to ensure that the bracket is attached firmly – ideally, it should be secured to a joist. Position your PJ so that an imaginary line from its lens to the opposite side of the room hits the screen exactly half-way along its width. The location of your screen should therefore dictate where your projector is. A decent tape-measure or laser pointer will help you to determine the position.

Throw distance: Throw distance specifies the distance between the projector and screen for a focused image of given size. As the vast majority of projectors are equipped with a zoom lens, minimum and maximum throw distances are often specified – say, 3.01m to 6.08m for a 100in. 16:9 image. Shorter throw distances are ideal for smaller rooms, and longer ones for larger rooms. Simple.

Throw ratio: Sometimes, a manufacturer will quote a throw ratio rather than a throw distance. This is basically the throw distance divided by the image width. To get the projected image size, divide the distance between projector and screen by the specified figure. Once again, the inclusion of a zoom lens means that upper and lower figures are usually specified.

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Top 10 SPEAKERS

All prices are approx
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A superior compact package with driver improvements over the previous 2000i series. The two-way cabinets and dual-driver sub combine to offer seriously impressive audio for the money. Design and build rock, too. HCC #247

**B&W 683 Theatre 5.1** → £2,750 ★★★★★

The first step on the floorstanding ladder in B&W's speaker stable, the 600 Series incorporates new tweeter and bass driver designs and offers absurd value for money. HCC #234

**KEF R Series 7.1** → £6,500 ★★★★★

A 7.1 array mixing dipolar and direct surrounds, this authoritative package takes its cues from KEF's Blade concept speaker and offers faultless, largescale home cinema sonics. HCC #217

**Artcoustic Spitfire SL 7.2** → £17,000 ★★★★★

Slimmed-down cabinets now even easier to install on-wall or behind a screen, with a multi-driver design ensuring they're easy to drive to high SPLs. Ideal for dedicated rooms. HCC #233

**Tannoy Precision Series 5.1** → £4,450 ★★★★★

These speakers' classic look belies the brand's hi-fi heritage, but this multichannel setup works wonders with movies, too – a rich, large and dynamic sound is on offer. HCC #226

**Wharfedale Diamond 220 HCP** → £850 ★★★★★

This package offers a lot for less than a grand – two-way surrounds, a potent three-driver centre channel and agile subwoofer. Great movie sound and excellent build. HCC #248

**Pioneer S Series 5.0.4** → £2,150 ★★★★★

With Atmos-upfiring drivers incorporated into the cabinets (both the front floorstanders and surround standmounts) this is a neat way of upgrading your system. Bassy, fulsome sound. HCC #247

**Definitive Technology ProCinema 600** → £500 ★★★★★

A compact system which achieves impressive scale courtesy of additional passive radiators mounted in the satellite cabinets. Sleek styling and a cohesive, fun sound. HCC #244

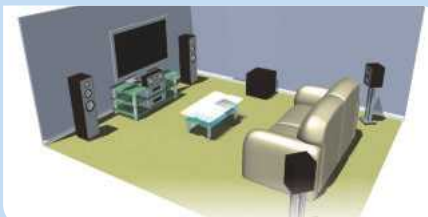
**Monitor Audio Radius R90HTI** → £1,500 ★★★★★

The Radius speakers have been revamped with new drivers and rear ports, and this 5.1 set provides a clear, detailed sound with plenty of heft. Floorstanders are an option, too. HCC #230

**Acoustic Energy 1-Series 5.1** → £1,400 ★★★★★

The unadventurous design won't appeal to some, but elsewhere this sensibly-priced floorstanding package ticks a lot of boxes. An unflustered sound that likes to go loud. HCC #246

TECH INFO: SPEAKERS



Centre speaker: Handles most of the dialogue and onscreen effects. Should be positioned above or below the screen as close to it as possible. Of course, if you're using a projector screen, it should ideally be placed behind it.

Front speakers: Left and right speakers should be positioned either side of the screen, in line with the centre. Turn the speakers in slightly to face the listener if there isn't an even movement of sound across the front of the room.

Subwoofer: Can be positioned wherever it sounds best or can be tucked out of sight due to the non-directional nature of low-frequency signals. Be aware that close positioning in corners or next to walls can create a boomy effect.

Surrounds: Position alongside the listener, pointing in or slightly behind the ears for a good surround effect. The back wall is not a good position for surrounds – it is, in fact, where you should locate the sixth and seventh speakers (rears) in a traditional 7.1 array.

DEMO DELIGHT

Godzilla: Hollywood tackles the iconic aquatic beastie once again, and the Blu-ray comes armed with a DTS-HD MA 7.1 mix that's dynamic, powerful, aggressive, detailed and expansive from start to finish. Check out Chapter 8's M.U.T.O. circling sequence for a masterclass in precision and control.

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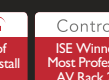
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TOP 10 AV RECEIVERS/AV PROCESSORS

All prices are approx
and may have changed**Onkyo TX-NR3030** → £2,500

★★★★★

The current king of Atmos AVR, this 11-channel design enables four height speakers to be added to an existing 7.1 array with ease. Lithe on its feet and with exemplary steering, this is multichannel audio at its best. *HCC #245*

**Denon AVR-X7200WA** → £2,500 ★★★★★

Capable of being upgraded to DTS:X later in the year, and sporting HDCP 2.2 support, this Atmos AVR is as futureproofed as it gets. Only a nine-channel design, though. *HCC #248*

**Denon AVR-X5200W** → £1,700 ★★★★★

Offering Atmos – and Auro-3D via a paid upgrade – the Denon X5200W offers nine amp channels and 11.2 processing. Energetic sound and flexible setup. *HCC #243*

**Onkyo TX-NR838** → £1,000 ★★★★★

A nicely-specced mid-range AVR, offering 5.1.2 Atmos playback (as well as regular 7.1) in addition to HDCP 2.2 support, which will please future-gazers. Crisp-sounding sonics. *HCC #240*

**Arcam AVR750** → £4,000 ★★★★★

If all you want from an AV receiver is vast power and effortless performance, this high-end 7.1-channel beast is tailored to you. Little bonus features beyond audio networking. *HCC #225*

**Marantz NR-1605** → £600 ★★★★★

A brilliant option for those cowed by full-form AVRs, the NR-1605 sees Marantz retool its slender line to include integrated Wi-Fi and Bluetooth. Agile, sprightly and easy to use. *HCC #239*

**Datasat LS10** → £10,000 ★★★★★

The 'entry-level' AV slab in Datasat's home audio range, this processor (upgradable to Auro-3D for a fee) is all about precision. Feature-lite, but it sounds phenomenal. *HCC #244*

**Yamaha RX-A3040** → £2,000 ★★★★★

This superb Atmos-ready flagship AVR features a fluid, dynamic sonic signature, slick operation and reassuringly robust design and build. Good in stereo mode, too. *HCC #239*

**Primare SPA23** → £3,500 ★★★★★

A stripped-down five-channel amp that majors on sublime, and power-packed, multichannel delivery. Limited functionality, but that's not what this luxury slab is all about. *HCC #237*

**Yamaha RX-V577** → £500 ★★★★★

Loaded with DSP modes (some fun, some not) and Wi-Fi-enabled for audio streaming, this clean-sounding Yamaha is a fab low-budget option. Bluetooth via optional dongle. *HCC #237*

TECH INFO: AV RECEIVERS



Tackling new heights: A recent innovation in AVR circles is the introduction of Dolby Atmos, the object-based sound format that has taken off in commercial cinemas and is supported in the home by the likes of Onkyo, Pioneer, Denon, Marantz and Yamaha. This requires new height speakers in addition to a regular 'flat' 5.1 or 7.1 speaker configuration. The heights can either be physically mounted in/on your ceiling, or provided via up-firing reflective models. Setup can be complex, but the results are certainly impressive. Atmos-encoded Blu-rays are a bit thin on the ground, but you can use Dolby Surround post-processing with regular 5.1/7.1 soundtracks to get the most from your new AVR/speakers. Rivals to Atmos are Auro-3D, which uses height speakers in a different configuration, and the forthcoming DTS:X. Most AVR brands have already pledged support for the latter.

How much power?: Many of the mass-market AV receiver manufacturers are involved in a specifications race to see who can say their model is the most powerful, which can be confusing for consumers. For instance, both Krell's £7,000 S-1500 seven-channel power amp and Yamaha's £500 RX-V675 both claim 7 x 150W – the important part is that Krell's figure is into an eight-ohm load with all channels driven, and that Yamaha's is with one channel into a four-ohm load, which is hardly a real-world situation. The best advice is ignore the numbers game and get a demo of your desired AVR with the same, or similar, speakers that you intend to partner it with.

TOP 5 BONUS FEATURES

**Scream Queens: Horror Heroines Exposed**

Found on 88 Films' recent hi-def outing for classic 1980s slasher *Graduation Day*, this feature-length doc lets some of the genre's leading ladies reminisce about the horror industry.

★★★★★

**The Science of Interstellar**

From black holes to the search for planets that can support life, this engrossing 50-minute doc (narrated by Matthew McConaughey) explores the scientific rationale that lies at the heart of the recent sci-fi epic.

★★★★★

**Keepers of The Covenant: The Making of Exodus**

Another great *Making of...* doc supporting a Ridley Scott flick, this 153-minute, seven-part feature covers everything you could possibly want to know about the film's production.

★★★★★

**Episode Reconstructions**

Only 20 of the 49 episodes of the BBC sci-fi series *Out of the Unknown* still exist in the archives. Thankfully, the BFI's DVD boxset uses surviving audio and stills to reconstruct several of these missing shows.

★★★★★

**Evolution with Extinction**

Clocking in at around two hours, this eight-part supplement looks at every aspect of the creation of Michael Bay's *Transformers: Age of Extinction*, from developing the story right up to the film's Hong Kong premiere.

★★★★★

Top 10 SUBWOOFERS

All prices are approx
& may have changed

- 1  **SVS SB-2000** → £650 ★★★★★
This follow up to the SB-1000, which incorporates a new 12in driver and revamped Sledge DSP amplifier, offers immense value for money. A mid-sized woofer that imbibes your Blu-rays with potent LFE, the SB-2000 sounds quick and taut, and is a perfect introduction to what a truly good sub can accomplish. HCC #233
- 2  **REL 212SE** → £2,750 ★★★★★
Lush design joins engineering nous in this premium sub with two active 12in drivers supported by a pair of passive radiators. Loud, deep and impactful, your BDs are in safe hands. HCC #246
- 3  **JL Audio Fathom F212** → £5,900 ★★★★★
The US brand arrives in the UK in style – this 2 x 12in, 3,000W brute not only looks gorgeous, it's capable of a mindblowing performance. Got a big room? Get one of these! HCC #214
- 4  **REL S-5** → £1,600 ★★★★★
A step up from REL's affordable T series, this 12in model is large and weighty, with a performance level to match. Fast and tight but capable of dropping very low indeed. HCC #234
- 5  **Bowers & Wilkins DB1** → £3,250 ★★★★★
Featuring a bipolar arrangement of 12in drivers powered by 1,000W of amplification, B&W's stylish flagship sub is a faultless performer, offering both musicality and sheer muscle. HCC #197
- 6  **Bowers & Wilkins PVID** → £1,200 ★★★★★
One of the coolest-looking subs on the planet, B&W's PVID uses DSP trickery to craft an opulent low-end performance. The touch-sensitive OLED display is pure class. HCC #212
- 7  **BK Electronics P12-300SB-DF** → £475 ★★★★★
Bass heads can get outrageous value for money in the shape of BK's overperforming 12in sub. A front-firing model is also offered, and other finishes knock the ticket down to sub-£400. HCC #247
- 8  **JL Audio E-Sub e112** → £2,050 ★★★★★
This 12in, 1,500W model from JL Audio's 'entry-level' line seems pricey, but its performance, design and tuning options make the investment oh-so worthwhile. HCC #240
- 9  **REL Habitat 1** → £1,300 ★★★★★
With its LongBow wireless system and wall-mountable design, REL's newest woofer is aimed at those seeking discreet bass. Twin 6.5in drivers work fast and with considerable grip. HCC #231
- 10  **SVS PB-2000** → £750 ★★★★★
The ported sibling to the SB-2000, this woofer uses the same driver and amp arrangement, but in a far larger cabinet. Bass goes deeper, but not at the expense of finesse. HCC #243

TECH INFO



Why use more than one sub?: Using two subwoofers (or perhaps four) should, in theory, bring huge rewards in terms of bass performance. But remember that LFE is a tricky beast to control. Running two subs may simply double problems in your room like room boom and suck-outs, where outgoing and reflected bass sounds cancel each other out. If you have some flexibility in where you place subwoofers, trial and error may well throw up some interesting results. The acoustics wizard Floyd E Toole (his book *Sound Reproduction: The Acoustics and Psychoacoustics of Loudspeakers and Rooms* is fine bedtime reading) suggests one LFE sub to either side of the room may be best for accuracy while placing them in the front corners would be best for overall bass power. Yet there is no hard and fast rule as to what will work best for every room, and you may find that simply using one (large) subwoofer is preferable as it's the easiest to get sounding right.

DEMO DELIGHT

Fury: The DTS-HD 5.1 track of Brad Pitt's tank drama is truly a thing to savour, with the audio engineers striving hard to deliver a packed, detailed soundfield that puts you right in the action. And, with its frequent artillery explosions, it's no surprise to find the LFE channel getting a thorough workout. Shells hit deliciously hard with taut bass throbs, while the eponymous tank's rumbles will scare your neighbours.

Top 5 CONSOLE GAMES

**Halo: The Master Chief Collection**

Xbox One releases don't come much more essential than this collection of remastered HD versions of the first four *Halo* games, plus access to the beta version of the upcoming *Halo 5*. ★★★★★

**Mortal Kombat X**

The king of beat-'em ups, NetherRealm Studios' newest entry into the popular franchise is strewn with gore, plays well and even lets you fight as the Predator if you fork out for the DLC upgrade... ★★★★★

**Alien Isolation**

This fantastic 'survival-horror' captures the unsettling atmosphere of Ridley Scott's feature film with aplomb. The lighting effects and audio cues are suitably spooky, and the gameplay is nerve-shredding. ★★★★★

**The Order 1886**

Sony's puzzle-infused actioner may prove a little short in run-time for seasoned gamers, but it's graphically sensational – we love the use of the 'Scope ratio' – and the multichannel audio is a treat. ★★★★★

**Dragon Age: Inquisition**

Finished with *Skyrim*? Then pick up this third instalment in the *Dragon Age* fantasy RPG series. A great-looking title, with plenty of side-quests littered around its vast open world to keep you adventuring for hours. ★★★★★

TOP 10 ACCESSORIES

All prices are approx and may have changed

- 1 Now TV box → £10 ★★★★★**
 An unqualified bargain, this Wi-Fi VOD streamer from Sky (and built upon Roku hardware) brings BBC iPlayer, Demand 5 and the Roku Channel Store to any HDMI-toting telly, plus subscription access to Sky Movies and Sky Sports. The quality of the adaptive bitrate streaming is impressive, and the £10 tag gets you P&P and an HDMI cable. *HCC #226*
- 2 Devolo dLAN 650 Triple+ starter pack → £120 ★★★★★**
 This package makes Powerline networking fast (claimed at up to 600Mbps) and easy. The three-port Ethernet extender is sleekly designed, and provides a regular plug socket, too. *HCC #239*
- 3 Dune HD Base 3D → £250 ★★★★★**
 A media player for the AV enthusiast. Full-width and fully-featured, it provides support for 3D BD rips and much more, with a slick user interface and plenty of connectivity. *HCC #235*
- 4 Amazon Fire TV Stick → £35 ★★★★★**
 Half the price of the standalone Amazon Fire box, this HDMI stick outguns its Chromecast and Roku rivals with more potent processing and a slicker UX. A brilliant add-on to any TV. *HCC #248*
- 5 HDAnywhere mHub → £1,000 ★★★★★**
 An impressively flexible multiroom solution that allows HD video and audio to be sent via Cat cable to four displays from multiple sources. Includes HDMI mirroring, too. Handy. *HCC #240*
- 6 Philips Hue → £180 ★★★★★**
 These Wi-Fi enabled lightbulbs might be expensive (this £180 starter pack includes two, plus the Wi-Fi bridge) but making your own multicoloured lighting scheme is a blast. *HCC #220*
- 7 QNAP HS-251 → £300 ★★★★★**
 Adding HDMI connectivity to a NAS device is surprisingly useful – and this slim-line model from QNAP is styled to grace your living room. Flawless media playback and responsive. *HCC #248*
- 8 Microsoft Xbox One → £430 ★★★★★**
 Not as graphically potent as the PS4 (below) but the new Xbox lives up to its billing as a home entertainment hub – voice control and multi-tasking tricks prove very useful. *HCC #230*
- 9 Sony PlayStation 4 → £350 ★★★★★**
 The PS4 offers a killer gaming experience, with the under-the-hood power resulting in great-looking games. 3D Blu-ray playback has now been added via firmware. *HCC #229*
- 10 Philips SW750M → £130 ★★★★★**
 A multiroom-ready speaker that works with the Spotify Connect service, this curved cabinet offers a decent, punchy sound for the price tag. No Bluetooth, DLNA or external hookup. *HCC #246*

TECH INFO: MEDIA PLAYERS



What about my TV?: Most flatscreen TVs from the major brands (Sony, Samsung, Panasonic, LG, Toshiba and Sharp) also incorporate media player functionality, using Ethernet or Wi-Fi to stream from your home network, or from plugged-in USB drives. Most modern Blu-ray players offer this, too. However, file support is rarely as extensive as on dedicated devices from the likes of Western Digital and A.C. Ryan, and our experience shows some are more adept at playback from USB than over a network. Nor (obviously) is a TV or BD player portable. If your media collection extends beyond JPEGs and MP3s into lossless audio rips and esoteric HD video formats, then a standalone player is a good investment.

Storage: You can, if you really want, store all your files on a plethora of USB drives, or on your PC, but it's best to get a NAS (Network Attached Storage) device for simplified sharing of your media across a network with



multiple players, such as one from Netgear's ReadyNAS range (pictured). These dedicated devices often offer RAID array file backup, and are managed via browser software. Storage capacity can be anything from 1TB to 12TB and beyond.

TOP 5 BLU-RAY/DVD BOX SETS

**Wolf Hall**

The BBC's recent six-part historical drama features an A-list cast and lavish production values, while this BD boxset carries crisp 1080i visuals and an evocative DTS-HD MA stereo soundtrack.

★★★★★

**Game of Thrones: The Complete Fourth Season**

Now in its fourth run, HBO's award-winning fantasy series continues to dazzle, as do the Blu-ray releases – the AV presentation here is superb, backed up by plenty of extras.

★★★★★

**The Long Good Friday + Mona Lisa**

Two of Bob Hoskins' most iconic roles presented in an extras-packed boxset and given thoroughly impressive HD transfers – both look wonderfully filmic.

★★★★★

**The Avengers: The Complete Series Four**

A combination of beautifully restored episodes and a vast array of supplementary features ensure that this rather pricey boxset is a must-own for fans of the cult '60s British TV series.

★★★★★

**Twin Peaks: The Entire Mystery**


Both seasons of the US cult TV series and the prequel flick ...Fire Walk With Me are given a fan-pleasing 10-disc BD release, sporting 7.1 DTS-HD audio and a treasure trove of bonus bits.

★★★★★


Top 10 SOUNDBARS & SOUNDBASES


All prices are approx & may have changed


- 


Canton DM75 → £450 ★★★★★
Bigger and bolder than the already excellent DM50 (which retails for £100 less), Canton's sturdily-built soundbase speaker lacks HDMI inputs but makes up for it with Bluetooth streaming and a brilliant 2.1-channel performance packing weight, scale and detail. Simplistic, understated design. *HCC #243*
- 


Monitor Audio ASB-2 → £1,000 ★★★★★
This premium proposition marries Monitor Audio's C-CAM drivers with AirPlay and DLNA music streaming. Performance is exemplary – powerful and polished in equal measure. *HCC #229*
- 


Yamaha YSP-2500 → £800 ★★★★★
An HDMI-switching 'sound projector' using Yamaha's Beam tech to craft impressive surround sonics from its drivers. Efficient sub, plenty of detailing and fun/useful app control. *HCC #243*
- 


Cambridge Audio TV5 → £300 ★★★★★
Twin 6.5in bass drivers lend the TV5's sound some decent low-end heft, but not to the detriment of the rest of the soundstage. An enjoyable, balanced listen. Easy to use. *HCC #245*
- 

Q Acoustics Media 4 → £400 ★★★★★
A no-nonsense offering from the speaker specialist, which ignores HDMI inputs and daft DSP modes in favour of creating a nuanced, solid 2.1 soundscape. *HCC #238*
- 

DALI Kubik One → £800 ★★★★★ NEW ENTRY
The Danish speaker brand brings a slice of glamour to your setup with this stylish soundbar. No HDMI or digital decoding but it packs a tight, lively and nuanced sound. *HCC #248*
- 

Pioneer SBX-N500 → £250 ★★★★★
£250 gets you this single-enclosure audio offering with welcome DLNA functionality, USB input, HDMI ARC output (but no input) and Bluetooth. Weighty, vibrant sound. *HCC #238*
- 

Yamaha SRT-1000 → £450 ★★★★★
A reasonably sleek soundbase with a thumping bass output, crisp highs, app control and Beam driver tech that strives hard to deliver a 5.1 experience. *HCC #243*
- 

Humax STE-1000BSW → £180 ★★★★★
A striking design and bargain price tag will get Humax's debut 'bar plenty of admirers. Performance is decent for the money, albeit lacking low-frequency finesse. *HCC #238*
- 

Samsung HW-J8500 → £900 ★★★★★
Samsung's second-gen curved soundbar ups the driver count and the price tag. Performance is decent, but you can find more finesse and bass integration elsewhere. *HCC #246*

TECH INFO: TV PLATFORMS



TV addicts – go free, or pay-to-view?:

The landscape of the UK television industry has changed hugely in the last decade. The analogue switch-off has created a competitive market in free-to-air platforms, while Sky and Virgin Media are squaring up to the likes of EE TV, Amazon Prime and Netflix. Deciding which service is right for you can be complex, and you may find your needs are best catered for by a combination.

Sky+HD: The long-running satcaster offers a plethora of HD channels, with content including recent movie releases, live sports and sought-after US shows. Hardware options include the 2TB dual-tuner PVR.

Virgin Media TiVo: The cable giant offers a three-tuner PVR (1TB) with intelligent TiVo recording tricks, catch-up apps (including Netflix and Spotify), and over 240 channels (depending on package). Premium Sky content can be added on a monthly basis.

Freeview: The common option when it comes to TVs and set-top boxes. Freeview offers 13 HD channels (depending on regional roll-out) plus SD and radio. No contract fee.

Freesat: Satellite service offering a similar – but not identical – channel lineup to Freeview, delivered to your HD flatscreen via a dish but without a subs cost. As with Freeview, budget-priced STBs are available.

YouView: This relatively new kid on the block integrates the UK's main catchup portals directly into a backwards EPG. Again, channels are broadly similar to Freeview and there's no contract. Humax (PVRs) and Sony (TVs) are leading the hardware charge.

Top 5 BACK-CATALOGUE BLU-RAYS



Charlie Chaplin: The Mutual Comedies

Exquisite restorations of the 12 shorts that the little master made for the Mutual Film Corporation in 1916/17. And this two-disc BD comes with some worthwhile bonus bits.

★★★★★



Blood and Black Lace

Mario Bava's genre-defining 1964 slasher makes its hi-def debut with a dazzling new 2K restoration that really gets the best out of the film's bold colour palette, alongside an exhaustive array of supplementary features.

★★★★★



Wooden Crosses

This French war movie released in 1932 looks in great shape on this Masters of Cinema Blu-ray thanks to a new 4K restoration. There's plenty of discussion about the disc's production among the ample extras, too.

★★★★★



The Wizard of Oz 3D

Delivering the best-looking version of the film to date (derived from a new 8K scan), this superb pack also squeezes in all the original extras and a 3D conversion that adds layers of fun to Dorothy's adventure.

★★★★★



The Day The Earth Caught Fire

The highlight of the BFI's 'Sci-Fi: Days of Wonder' festivities, this stunning Blu-ray restoration should introduce this underrated British disaster flick to the wider audience it deserves.

★★★★★



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TOP 5 PVRs

**Virgin Media TiVo, £subscription**

This triple-tuner PVR offers ultimate recording flexibility, useful features – you can undelete deleted shows! – and awesome TiVo functionality. A no brainer if you're in a cable area

★★★★★

**Sky+HD, £subscription**

Sky's channel choice is second-to-none and its twin tuner 2TB PVR is a perfect partner. The recent EPG tweak is welcome and Anytime (the push VOD service) is brilliant for catching up on new movies

★★★★★

**Panasonic DMR-HW220, £250**

Panasonic's PVR mixes a 1TB hard drive with its Smart Viera functionality and media streaming – so at £250 it's an absolute steal, regardless of the uninspired design

★★★★★

**Humax DTR-T2000, £180**

This second-gen 500GB YouView PVR benefits from some under-the-hood tweaks that make the time-shifting experience slicker than ever. Useful app control, but no home media playback offered.

★★★★★

**EE TV Smart Box £subscription**

This quad-tuner 1TB PVR, from the mobile/broadband corp, offers innovative Replay 24-hour channel recording and great Smart device streaming. Needs more catch-up though

★★★★★

TOP 5 HEADPHONES

**Sony MDR-HW700DS, £800**

Comfy cans supplied with an HDMI surround processor, enabling multichannel audio to be fed to a virtual 9.1-channel soundstage. The effect is superb – great for late-night listening

★★★★★

**Oppo PM-1, £1,100**

Audiophile-grade, using planar magnetic driver designs, and with a lush design and build. The sound quality of the PM-1s is superb, so while these are undoubtedly costly, buyers won't be disappointed

★★★★★

**Lindy Croma NCX-100, £100**

A cost-effective domestic option and great for travelling, these noise-cancelling 'phones (which can also be used as a normal passive design) feature a pleasant, balanced sound

★★★★★

**PSB M4U1, £220**

Aimed at both home and on-the-move use (and supplied with a carry case and two cable options), the M4U1s offer solid bass response and impactful highs. Build quality is good, as is comfort

★★★★★

**AKG K550, £200**

The styling of these closed-back cans is reassuringly 'classic' and the sound signature is surprisingly open and spacious. Use them for movie watching and you'll enjoy a good sense of scale and weight

★★★★★

TOP 5 SYSTEMS

**Panasonic SC-BTT505, £600**

Two-way driver arrangements in these grown-up looking speakers (plus a dizzying range of features) make this a great purchase. Big, dynamic sound, with strong dialogue

★★★★★

**Samsung HT-J7750W, £800**

Samsung's top-dog in its 2015 lineup is similarly styled and specc'd to last year's H series model. It has a powerful, dynamic sound, but is a little rough around the edges

★★★★★

**Harman/Kardon BDS470, £650**

Harman's 2.1 system eschews 'net TV and streaming features, but majors in heavyweight build quality and solid AV performance. We tested a 2.1 iteration – 5.1 is also available

★★★★★

**LG BH8220B, £650**

With its silver finish, this is a suitable one-box system to partner with LG's flatscreen TVs, with a commendable, if slightly lacking in HF finesse, sound. Additional features including CD-ripping to USB. Handy

★★★★★

**Panasonic SC-HTB570, £350**

A commendable slim-line 2.1 system that can also be clicked together to make a soundbar. The punchy wireless subwoofer does a lot of the work. Bluetooth music streaming is onboard

★★★★★

HOME CINEMA

Choice

→ IN THE NEXT ISSUE

Home cinema's greatest innovations! Looking back at the best kit from 250 issues of HCC
Demo Screen Our new favourite test discs revealed
CEDIA Awards 2015! Stunning home cinemas from the UK and beyond

→ ON TEST

Sony STR-DN1060 AV receiver **Philips 55PUS7600 4K LED TV** **PMC Twenty Series 5.1** **Panasonic HTB855 soundbar** **Bluesound multiroom audio** **Sony SRS-X88 soundbar** **High-end TV roundup**
PLUS News, software, opinion, AV rooms and more!

CONTENTS SUBJECT TO CHANGE – BUT ONLY FOR THE BETTER

ISSUE
 #250 ON SALE
 July 30

Home cinema

Which sort of visual system do you go for?
Projector and screen, LCD or LED TV? 3D or non-3D?

Choosing a home cinema system is a potential minefield that must be negotiated with great care or safely avoided by letting experts guide you. If you want to end up with a system that, as a minimum, meets your expectations in terms of picture and sound quality, reading magazine product reviews and choosing the recommendations, five-star favourites or best buys can only ever be part of the answer at best. Looking for the cheapest price and having a system delivered to your door, even with a 'knowledgeable' friend to help set it up, is a well-trodden path to disappointment.

There is a bewildering choice of components on the market today and also different ways in which components can be installed and connected together. Which sort of visual system do you go for? Projector and screen, LCD or LED TV? 3D or non-3D? Full 1080p capability is now the only sensible choice but the appropriate source components, such as a Blu-ray player, need to be part of the equation.

The sound performance of a system is also hugely important, even more so if you will be listening to music, or music DVD's, through the same system. If so, you need an amp that approaches the performance

of a decent 2-channel hi-fi amp, which is not that easy to find. Having an amp with the right inputs for the best connectivity is essential but you will also need to decide on a 5.1 or 7.1 speaker system, passive or active sub and, crucially, where they will be sited for the best results. In short, it's complicated and very fertile ground for getting it wrong.

Achieving potential

To select a system, you could choose a collection of 'Best Buy' components in the hope that they will be a great combination. Maybe, but probably not. You could buy a pre-packaged all-in-one system from one manufacturer. This is almost certainly not the best route either, as you will miss out on enormous potential. From informal surveys conducted, it appears highly likely that the majority of home cinema systems

selected and installed on a DIY basis (that is without professional input) are performing at way below their optimum level. To compound matters, most are also ill-matched to the room in which they are installed and are, in reality, the wrong system. Without considerable knowledge or experience, high quality home cinema is not a suitable DIY activity. Our aim must be to buy a home cinema system that will provide an excellent picture quality plus an audio delivery that will match, or even better, the commercial cinema experience. It must be exciting, reliable and deliver true value for money.

“ Home cinema
so good you'll believe
you're there! ”



Selecting and installing
home cinema on a
DIY basis may leave
the system performing
at way below its
optimum level.

Confused ?

What and Where to buy

To ensure a home cinema system is right for you, where do you start? Here's an important tip ...don't start with WHAT, start with WHERE. There's only one way to give yourself the best chance of getting it right first time, and that's through a specialist AV dealer. It's possible you have preconceived ideas that put you off visiting one. Although you would welcome the advice and guidance, you don't know the technical jargon. You don't want to be talked down to. Your friend has said they only sell expensive gear and they're not interested if you don't have a big budget. They're expensive. These are just myths.

Most specialist AV dealers are running their business because, above all, home cinema is their hobby. They spend a large portion of their time comparing systems to get the best possible results. They know the component combinations which don't gel together and, conversely, they know the combinations which give the best performance within a given price range. Very importantly, they know how to get a system working to its optimum. But they all also know the system must suit you.

Buying or being sold to

There are dealers around, web based or otherwise, who will sell you anything you are willing to pay for. They may be a bit cheaper but that's all they offer. Now there's a carefully selected group of long-established specialist dealers who are totally committed to putting the customer first. Their idea of 'selling' is to discuss your requirements, offer their advice, give you the best options, then play the systems for you and allow you to be the judge. You'll probably be surprised and, almost certainly, relieved to discover how easy it is to see and hear the differences between components and between systems. You'll be able to make a clear and informed decision about what to buy.

The story doesn't end there. These shops won't abandon you once you've put your hand in your pocket. They won't leave you to set up the system you've selected as best you can. They'll install it in your home, make sure it performs to its best, and ensure you're entirely happy with the way it works. Why? Because a high proportion of these dealers' custom comes through people who have bought from them before, either directly or by recommendation. It's vital to them to get it right for you.

Getting the best deal

Unless you've got money to burn, you'll be living with your new system for years. Most of these dealers offer much longer equipment guarantees than provided by the manufacturer, a very worthwhile benefit, but it also makes it in the dealer's interest to ensure high build quality and reliability. Maybe you could save a few pounds by buying piecemeal but you'll lose out on the overall package. As far as the dealers are concerned, they believe that taking care of their customers properly is a far better way of doing business than just handing over boxes.



The Dealers listed below have been selected because they are known to do an excellent job in guiding customers towards home cinema systems that will provide years of superlative performance and total satisfaction.

Our Top20 AV shops in the country

SOUTH

Chelmsford

RAYLEIGH HI-FI SOUND & VISION

216 Moulsham Street.
01245 265245
www.rayleighhifi.com

Maidenhead

AUDIO VENUE

36 Queen Street.
01628 633995
www.audiovenue.com

Norwich

MARTINS HI-FI

85-91 Ber Street.
01603 627134
www.martinshifi.co.uk

Rayleigh, Essex

RAYLEIGH HI-FI SOUND & VISION

44a High Street.
01268 779762
CUSTOM INSTALL DEPT.
01268 776932
www.rayleighhifi.com

Southend-on-Sea

RAYLEIGH HI-FI SOUND & VISION

132/4 London Road.
01702 435255
www.rayleighhifi.com

LONDON

W5

AUDIO VENUE

27 Bond Street, Ealing.
020 8567 8703
www.audiovenue.com

N1

GRAHAMS HI-FI

190a New North Road.
020 7226 5500
www.grahams.co.uk

SW11

ORANGES & LEMONS

61-63 Webbs Road, Battersea.
020 7924 2040
www.oandlhifi.co.uk

MIDLANDS

Coventry

FRANK HARVEY HI-FI EXCELLENCE

163 Spon Street.
024 7652 5200
www.frankharvey.co.uk

NORTH

York

SOUND ORGANISATION

2 Gillygate.
01904 627108
www.soundorg.co.uk



The majority of the above dealers are members of one or both of the major trade organisations, BADA or CEDIA.

www.top20uk.info



STAR QUALITIES

VALUE FOR MONEY ★★★★★
SERVICE ★★★★★
FACILITIES ★★★★★
VERDICT ★★★★★

...Talk to the experts



AV AVENGER

Rather than worry about fear of format failure, **Steve May** loves to embrace new technology from day one, even if it means running out of storage space for obsolete hardware

YOU KNOW WHAT? I'm an early adopter and I'm proud of it. I feel I can share that with you as we are likely kindred spirits. But tell that to the wider world and they'll look at you askance, eyes filled with pity and scorn.

The fact is, we early adopters have had a bad rap for years now. We're the guinea pigs of new technology, the unpaid Beta testers of tomorrow's toys. And even the industry we prop up pays us no respect.

At the recent DTG (Digital TV Group) industry summit in London, broadcasters and hardware vendors were locked in debate about Ultra HD TV standards while nibbling on 4K canapés. 'If you've just bought a 4K TV you'll have to throw it out next year,' one commentator proclaimed, eliciting wry amusement from his audience. 'Hands up if you've been stupid enough to buy one,' he chided (or words to that effect). No one raised a paw for fear of ridicule.

Well I'm raising my hand right now. It feels great to be an early adopter. Not least because **the club comes with brilliant benefits – buy the first iteration of any hot new tech and it'll almost certainly be better built than everything that comes after.** (On the other hand, pick up a high street Blu-ray player today and it'll be lucky to see out the end of the month). You also get invaluable bragging rights that define you as a finger-on-the-pulse technology trendsetter in your social circles ('3D TV? Oh I've had that for years. It's fabulous, darh-ling!').

Being an early adopter is also clear evidence of extraordinary foresight. I have absolutely no regrets about buying into Sony's Betamax. I absolutely loved the format, owned loads of

machines (my original SL-C7 is still somewhere in the loft and would presumably work if I shook it hard enough) and cherished them all. Even a Sanyo model (a slick hi-fi offering, not the whale-like VTC-9300, obviously).

And I still maintain a Laserdisc library, albeit relegated to the garage. It's full of hugely expensive (and now admittedly worthless) special editions and seriously boxy boxsets, including some exotic Mike Hunter imports from Germany, ordered purely for research purposes back in the day...

Hold your head up high

I would therefore argue if you're an early 4K/Ultra HD adopter you're entitled to feel supremely smug. While the industry continues to pontificate itself into paralysis, you'll have been luxuriating in 2160p images for yonks.

The typical replacement cycle for televisions is around six years. I'll probably have been enjoying 4K upscaled images from my gorgeous Sony X9 flatscreen for more than half that time before the first serious attempts at 4K broadcasting with HDR (High Dynamic Range) even begin.

As if to prove my point, Chris Johns, Chief Engineer at satcaster Sky who also heads up the UK UHD Forum group, implored his audience at the aforementioned conference: 'You can now buy a 1,000 Nit Samsung TV on the high street, we have to catch up!' Indeed you do, Johns.

Yes, being an early adopter is something to celebrate; it's a badge to be worn with pride. Let's stand unbowed. Early adopters united! Unless you've just bought an Apple Watch. Then you're on your own... ■

Are you an early adopter, or do you wait for tech to mature? Let us know: email letters@homecinemachoice.com



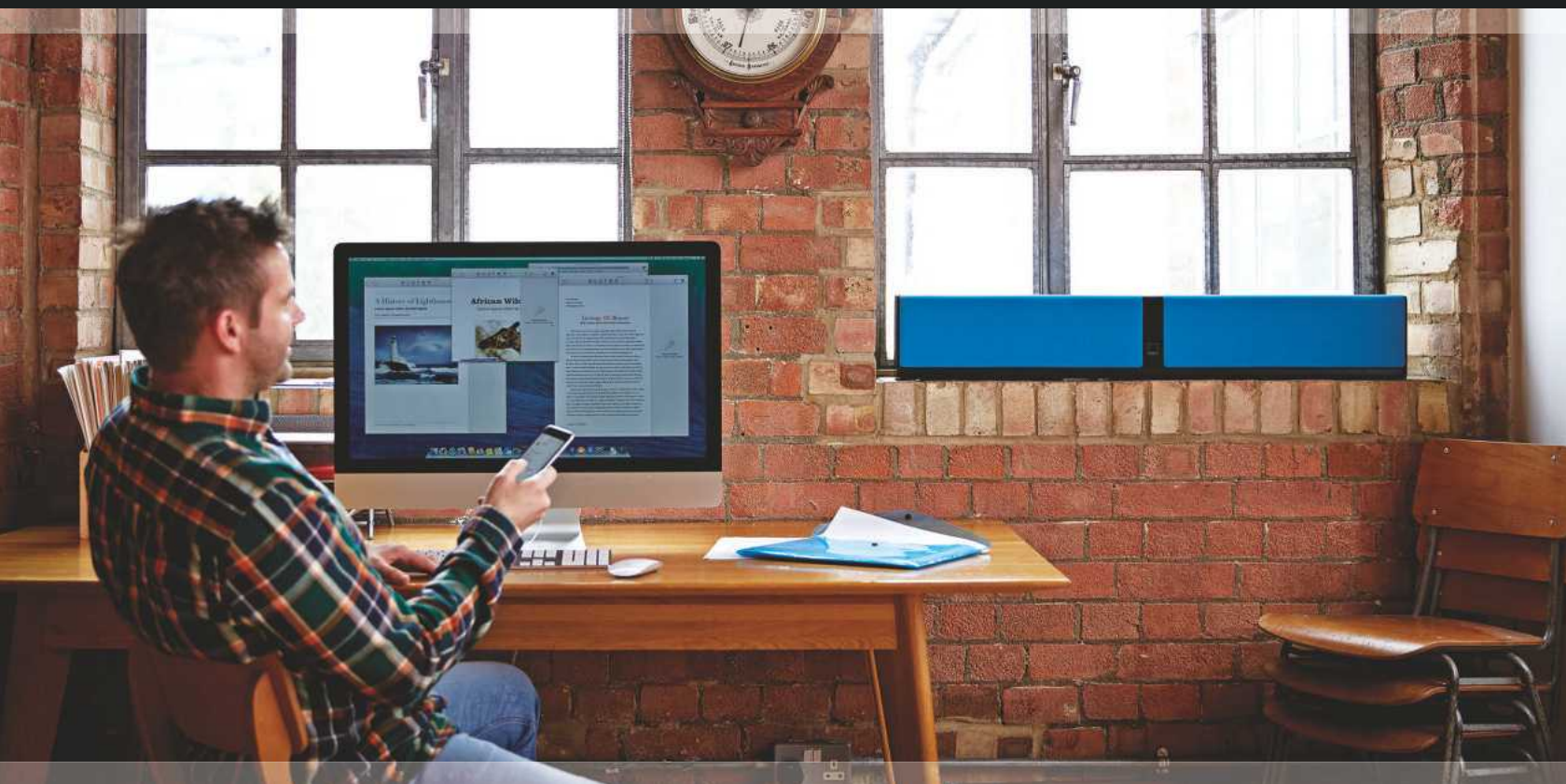
Entrepreneur **Steve May** is now off to order a bundle of 'I'm an early adopter and proud of it!' t-shirts to flog outside high street electronics shops



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HA-2

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AV Forums

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black or white

